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THE PROBLEM OF CHRONIC ANOREXIA IN CHILDHOOD *

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Chronic anorexia, especially in older children, is one of the most common and baffling complaints in the experience of the medical practitioner. In a large outpatient series, Bartlett [1] found it the chief complaint in about 24 per cent of the pediatric cases. It may be a prolonged but temporary phase, or it may be an almost habitual, seemingly congenitally fixed, attribute of the individual.

Chronic anorexia is seldom, if ever, encountered in the child with rugged physique; that is, the child manifesting all the external and internal signs of normal functional and physical make-up. It is generally encountered in the reverse of the normal type. The subject presenting this disorder is commonly thin, gracile, pale and transparent, and usually is decidedly underweight. Functionally he is definitely below par, as is evidenced by the ease with which any dysfunction can be produced and the almost immediate reaction of fatigue to any considerable demand on his physical energy. In short, the child with chronic anorexia is the familiar hyposthenic or asthenic type so well described by Mills [2] and others. A general lack of muscular tone of all structures, including the gastro-intestinal tract, characterizes these individuals and is directly or indirectly responsible for much of their dysfunction.

The hyposthenic or asthenic type may develop in two ways. It may be a constitutional disposition, or characteristic, transmitted from parent to offspring—in my opinion, a very common form of development. Much less frequently it may be brought about by prolonged action of some disease process or focus, obscure or manifest. Whichever cause is operative, the end-result in either instance is always the same. The two types present in greater or lesser degree the problem of anorexia.

There are distinct differences between the asthenic child constitutionally so disposed and the asthenic child brought to that state by extraneous causes such as chronic foci of infection or disease. The classic description of Comby and Marfan [3] of the neuro-arthritic diathesis type, and of Czerny [4] of certain exudative diathesis types, admirably fits these cases. There is no endocrine dysfunction in these children. One has the impression that there may be hyperfunction. Hyperactivity, great instability of temperament, a tendency to habit formation, wilfulness and behavior problems are outstanding characteristics of these constitutional types. Mentally, these children are superaccomplished and brilliant. Comby has aptly designated them "dégénérés supérieures."

These children are often the offspring of intellectuals who themselves conform to this general type, and are given to all sorts of oddities and queerness in their own personal reactions and in their adjustment to their environment. They furnish often the worst possible association for an offspring handicapped *a priori* by vicious constitutional complexion and pattern.

Metabolic processes seem to be quite unstable in this type of child. They are easily deranged. Such disorders as acidosis and cyclic vomiting are often encountered. The vasomotor system is equally unstable, as is also the nervous system, dealing with functional control.

Pavor nocturnus, enuresis and tetany, even leading to transitory convulsions, are not uncommon in this type of child. Cameron [5] raised the question whether the carbohydrate and fat metabolism was adequate, and believes that the tendency to transitory periodic ketosis is referable to such causes. Hammett [6] found in comparative metabolic studies of stable and unstable individuals that the latter showed greater variation in the nitrogen, urea, creatinine, uric acid, amino-acid and sugar content of the blood. It has been shown by Carlson [7] and others that the secretory and enzyme function of the gastro-intestinal tract of this type of individual may be abnormal. Many of the functional types of anorexia mentioned by Bartlett no doubt belong to this constitutional type and could be classified under it. Asthenia or hyposthenia, with concomitant anorexia, can be brought about by chronic disease or the prolonged action of persistent concealed or manifest foci of infection. Bartlett [1] describes this as the organic form of anorexia. The commonest pathologic conditions that he found associated with marked loss of appetite were septic tonsils and adenoids, acute infectious diseases, tuberculosis, pyelitis and dental caries, in the order mentioned. In general, this agrees fairly well with my experience in both outpatient and private practice. There is no question that focal infections located about the head are by far the major cause of organic anorexia in the child.

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1. Bartlett, W. M.: Analysis of Anorexia, Am. J. Dis. Child. **25**: 26 (Jan.) 1928.
2. Mills, R. W.: Am. J. Roentgenol. **4**: 155 (April) 1917.
3. Grancher, J.; Comby, J., and Marfan, A.: Traité de maladies de l'enfance.
4. Czerny, A., and Keller, A.: Des Kindes Ernährung und Ernährungsstörungen, Berlin, 1920.
5. Cameron, H. C.: Brit. M. Jour. **1**: 185 (Feb. 2) 1929.
6. Hammett, F. S.: Am. J. Physiol. **53**: 307 (Sept.) 1920.
7. Carlson, A. J.: The Control of Hunger in Health and Disease, Chicago, University of Chicago Press.

The behavior, mental attitude and reaction to environment of the child in whom hyposthenia or asthenia is brought about by disease or chronic focal infection, which may or may not have been removed, is very different from that of the child in whom constitutional factors are at play. The former is quiet, placid, resigned, tractable and obedient, and causes concern to his parents only by virtue of his immediate lack of appetite. He is not a problem child. He manifests few, if any, of the peculiar neurologic or vasomotor symptoms of the constitutionally asthenic child. His pallor, due to secondary anemia, muscular atony and disturbance of mineral balance, is probably more pronounced because there are more destructive factors at work than there are in the other condition. On the part of the gastro-intestinal tract there is the same dysfunction in the two conditions. Anorexia is one of the chief complaints.

What is really the factor most responsible in the development of the anorexia is a grave question. It is probably a complex combination of different things. Experimental work of Sauer [8] and his associates, of Hurvitz [9] and of others would indicate that gastric atony, resulting in delayed emptying time of the stomach, and diminished secretory function are outstanding dysfunctions in the child suffering from primary chronic anorexia. The emptying time, in certain of these cases, is sometimes delayed as much as two hours over that of the normal child. The free and combined hydrochloric acid, especially the former, is greatly diminished in the child with anorexia, the free hydrochloric acid, in some cases, being as low as half that found in the normal case. The improvement of the anorexia under proper treatment coincides with definite improvement in these two dysfunctions.

Some experimental work carried on by Rupp and myself in asthenic children showed that they had a marked decrease in motility, as regards both the duration of activity and the number of contractions occurring during the period of activity. The type of contraction also was decidedly different from that of the normal well nourished child.

Carlson [7] designates this period of activity as the "hunger period," and the individual contractions as the "hunger contractions." He has shown that hunger is dependent on vigorous rhythmic contractions of the stomach. These occur with regular periodicity after the stomach has been empty of food for a given period of time. The hunger sensation is produced only by these contractions. In the asthenic child, both "hunger period" and individual "hunger contractions" are decreased as compared with the normal.

Emotional factors and environmental influences play a great contributory rôle in bringing about or aggravating existing states of anorexia. They may be the predominating element in the case. Carlson and other investigators have shown that the emotional states may decidedly influence hunger contractions. The digestive secretions may be influenced in like manner. There is definite and abundant proof that physiologic processes concerned with nutrition bear a distinct relationship to the emotional state of the individual, and are modifiable in varying degree by emotional changes.

It is evident that this factor would play a big rôle in the child constitutionally disposed to asthenia, because of its outstanding characteristic of emotional and temperamental instability. It would be almost absent in the asthenic child brought to that state by the influence or effects of disease.

Some investigators give the formation of food habits a large place in the causative factors of anorexia. Mohr [10] is of the opinion that most emotional-nutritional situations of later child life could be prevented by an early, properly controlled, dietetic regimen, and the ordinary habit training of an infant. Aldrich [11] believes that prophylactic procedures begun in early infancy, and particularly correct therapeutic procedures during the first attack of anorexia, with the proper subsequent regimen and sensible cooperation on the part of the mother, will successfully insure against the development of later attacks of functional anorexia.

The views of Mohr and Aldrich are sound and correct, and are endorsed by any one who deals much with this problem.

It has been my impression that the environment of the child, particularly its relationship to the mother or the immediate attendant, is probably the largest contributing factor or additive cause in the development of anorexia, and creates often the most difficult problem in the successful and permanent relief of the condition. How many times does one not have the experience that complete separation of the child from a vicious environment will go far to improve even the most difficult feeding situation, and will assure permanent improvement of the anorexia, provided the corrective procedures are sensibly continued and conscientiously carried out? Much of the success of such methods of treating anorexia as that of Emerson [12] depends on such procedures.

It is my conviction that, after the most critical survey and evaluation of all the causes, both principal and contributory, in a case of functional anorexia, one will be forced to the conclusion that underlying the whole complex picture is the constitutional dyscrasia or disposition, and that practically all of the complex problems it presents are in the final analysis chargeable to it.

The successful treatment and permanent relief of chronic anorexia are not easily accomplished and constitute a many sided problem. The course to pursue in the organic form is clear and certain in its result. The complete removal of foci of infection alone will almost suffice to improve the anorexia markedly, if not entirely to clear it up. With a sensible choice of food, adequate rest and avoidance of fatigue, and intensive application of radiant energy, a rapid and permanent cure will, with few exceptions, be effected.

The problem is quite different and much more complex in the functional form of anorexia, and when constitutional characteristics or tendencies are involved. The procedure outlined by Aldrich,[11] reaching into early infancy and combating a tendency to anorexia in its very beginning, through proper prophylactic measures, is excellent, and prevents much of its later development. I heartily agree with him that one need not be afraid to place the patient on a starvation diet for anorexia, and that judicious use of this measure is far preferable to injudicious forced feeding, with the resulting possibilities of fixed aversion to food. The opportunities and possibilities of Aldrich's treatment have generally been missed in the older child brought to the physician for chronic functional anorexia.

The most careful physical inventory of the child must exclude focal infections or the presence of active dis-

8. Sauer, L. W.; Minsk, L. D., and Alexander, W. G.: Gastric Findings in Children with Anorexia, J. A. M. A. **70**: 184 (July 15) 1922.
9. Hurvitz, V.: Deutsche med. Wchnschr. **46**: 883, 1920.
10. Mohr, G. J.: Ment. Hyg. **12**: 366 (April) 1928.
11. Aldrich, C. A.: Ment. Hyg. **10**: 701 (Oct.) 1926.
12. Emerson, W. R. P.: Nutrition Clinic in Public Schools, Am. J. Dis. Child. **17**: 251 (April) 1919.

ease. The appearance and behavior of the child, and the critical estimate of its antecedents, will reveal the constitutional asthenic type.

It has been my experience that it is best to direct attention first and immediately to the environmental factor. Complete temporary removal of the child from its customary immediate attendants makes later success in the treatment more certain.

It enables one to apply educational and corrective influences to both mother and child. Both are educated, or reeducated, when one again unites them, and a complex problem has become simplified. The excellent results of Emerson,[12] Richard Smith, and others are based largely on the application of this technic.

It must not be forgotten that the problem of group feeding, as practiced in institutions, has definite advantages and presents less difficulties than does the feeding of the only child, or the warped little miscreant in the home.

The choice of food and its preparation is of great importance in the treatment of chronic anorexia, both functional and organic. The food should be selected with reference to high mineral vitamin and carbohydrate content. Bartlett stresses the value of liver feeding. I have found low fat diets by far the most satisfactory. The food should be of high concentration and small volume.

The excessive consumption of cow's milk is not good for the child with anorexia, although it is always readily taken. In my experience, the single removal of this article of food from the diet has often caused a marked improvement in the anorexia and resulted in the better taking of other desirable foods.

I am unalterably opposed to the popular, widespread, intensive propaganda for the consumption of large quantities of cow's milk by the child. Just how large quantities of cow's milk affect the child's appetite unfavorably, I do not know. A well controlled experiment to ascertain this fact is now in progress at the Institute of Child Welfare and in the pediatric department at the University of Minnesota.

An experiment carried out by Dunshee at the Institute of Child Welfare over a long period of time, on thirty-seven carefully selected and controlled, normal, preschool children, throws some interesting light on the amount and kind of food eaten by the normal child at that period.

Dunshee[13] found that the sex of the child did not affect the amount of food eaten. The children who stayed at the table longest tended to eat less food. Four different attitudes of the children toward their food were noted. It was eaten "with relish" 68 per cent of the time; "as a matter of course" 26.8 per cent of the time; "disliked" but eaten 3.25 per cent of the time, and "refused" 2.23 per cent of the time.

There was no particular difference in the mean amount of calories eaten by the children in the winter and summer months.

Of the six training methods used by the trained worker—praise, favorable comparison, critical comment, timing, reward and example—the coefficient of correlation showed very low relationships in the case of praise, favorable comparison and reward, and low negative relationship with timing and example.

An analysis of the refusal of food showed little discrimination between vegetable, carbohydrate and protein foods, other than milk. The refusal of milk was the least frequent, and that of dessert the most common. The attitude of "disliked but ate" was assumed most often toward vegetables and least often toward milk, the other foods ranging in between. This result supports the opinion that children like vegetables the least of any foods.

The influence of the nursery school environment played a big part, of course, in the behavior of these normal children, and their attitude toward food.

In difficult cases of functional anorexia, the question arises whether one should starve the child until some desire for food appears, or whether one should force the feeding.

Both methods, if judiciously carried out, may be used. I have often successfully initiated a regimen of treatment for functional anorexia by a starvation period of forty-eight hours with surprisingly good results. On the other hand, I have not hesitated to resort for brief periods of time to forced and even tube feeding in aggravated and extreme cases of functional anorexia.

The selection of the food should at no time be left to the inclination and choice of the child. It should be supervised by an intelligent adult, acting on competent advice, and considerable care should be exercised in the attractive preparation of any food given.

As regards disciplinary measures for the child with functional anorexia, I would prescribe for the attendant, as his whole course of procedure and contact with such a child, the old Latin proverb, "suaviter in modo, sed fortiter in re." These little tyrants learn quickly to recognize the hand of the master. The suggestions of Roberts[14] on teaching children to like wholesome foods are well applied in these cases.

The constitutionally asthenic child almost always has too many interests in his life. His mental activity favors this situation. His restless, unstable temperament precludes leisure and calls for the expenditure of much excess energy. The educational and recreational program of such a child must be simplified. The carefully controlled studies of the Sehams furnish valuable data on this problem.

I commonly prescribe only half-day school sessions for the constitutionally asthenic child and have the other half of the day devoted to a sensible health program. As many extraneous interests as possible are temporarily removed from his daily routine.

I favor a complete rest period for these children of not less than two hours, taken preferably in the afternoon and, combined with this rest period, heliotherapy in some form.

Few remedies are required in the treatment of chronic anorexia. The use of dilute hydrochloric acid would seem indicated in the light of Sauer's[8] experimental work.

I favor the liberal use of cod liver oil. It has seemed to be a beneficial remedy in the treatment of these cases.

It is clear that the problem of chronic anorexia in childhood is complex, and often of great difficulty. Its satisfactory solution depends on careful analysis of the fundamental and contributory factors in the case, and on the exercise of much patience, tact and attention to the many minute details entailed in the reconstruction program.

13. Dunshee, Marion E.: A Study of Various Factors Affecting the Amount and Kind of Food Eaten by Nursery School Children, Thesis, University of Minnesota, 1928.

14. Roberts, Lydia J.: Teaching Children to Like Wholesome Foods, Am. J. Pub. Health **15**: 52 (Jan.) 1925.

ABSTRACT OF DISCUSSION

DR. WALTER R. RAMSEY, St. Paul: These cases of anorexia form a very large part of the pediatrician's practice. Dr. Schlutz said that heredity plays a very important, perhaps the largest rôle, in this class of cases, combined with the home training in the usually neurotic family. Many of these children are precocious and highly neurotic. They have a delicate constitution, which demands food, and are highly sensitive to suggestion, and the anxiety of the mother to have them eat more or eat at all reacts in exactly the opposite direction from what she wants it to. It is simply a question of leading the horse to water and not being able to make him drink. The more one coaxes these children, the greater the antipathy, to eating, and very rapidly they assume that they are doing the mother or the family or the nurse a real service, a favor, if they eat at all. I think letting these children go hungry, in keeping with the old adage of "Hunger is the best cook," very often works. Sometimes they should be removed from the family entirely and taken to the children's hospital, not with a private nurse but in the ward, where they see the other children and where they are not pampered. Very often this neurotic type of child may have been going on reasonably well but without any great demand for food. Then an acute attack of something supervenes; they are pampered for a while, and then it is very difficult to get them to eat again. Many of these children do not exercise. They are pampered. They are prone to sit around and mope. Getting them outdoors is important. Some of the very neurotic ones exercise too much and have to have enforced periods of rest. I want to emphasize one point that Dr. Schlutz brought out, and that is the importance of not forcing milk on these children. Milk is overemphasized for the child; it is propaganda, primarily on the part of those who have mill or other dairy products to sell, and I want to emphasize the fact that there are no other animals except the human and domestic animals that have any milk at all after they are a few months or a year old. We regard milk as a necessity for the child, but some older children would be better if they had no milk at all.

DR. C. A. ALDRICH, Winnetka, Ill.: Dr. Schlutz deserves a great deal of credit, particularly for emphasizing the point that these children are of the slender type, and probably always will be of that type. The thing to do is to make the best of the situation and realize that slender children may be healthy ones. Of course, we occasionally meet cases of anorexia in children of the robust type, but that is not the usual situation. I wonder how we got our ideas about milk. Milk producers certainly put their propaganda over in great style—a quart of milk a day. There is little scientific work to justify that slogan. It seems to me that the most important thing we can do is educational work with the mothers. The greatest stumbling block in our way toward putting across proper ideas of feeding children is the present standard of health which has been broadcast to the general public. The average mother thinks that her child is doing perfectly well if it makes a big gain in weight. We know that that is not true; that many a child who is gaining tremendously has rickets or is getting into all sorts of trouble which only the physician can discover. What we need is a rational standard of health. Perhaps, in our examination, we could scale on a basis of 10; for instance, body weight, or rate of gain, 2 points; the absence or presence of rickets, 1 or 2 points; anemia, the posture of the child, the brightness of his eyes—all sorts of things which we notice in looking over a child and in estimating his health—might be given prominence. Give those different factors their proper value in the score and then when a mother comes to us with a child and we look him over, instead of saying: "Fine! Your baby has gained 1 pound last month," we would say, "Fine! Your baby scores 10 this month, or scores 7." She will say, "Why not 10, instead of 7?" We could then tell her that there are definite points that her baby has not attained. In that way we would go far in curing the attitude of the mother which makes anorexia possible.

DR. ISAAC A. ABT, Chicago: No subject in pediatrics is more important than that of anorexia. So far as the condition of asthenia or hyposthenia is concerned, in relation to anorexia, I think we are justified in assuming that if a child refuses to eat he naturally fails to gain in weight and remains small and thin, possibly asthenic. The condition of anorexia is a very complicated one. It probably does not depend on a single causal factor. We do not understand what it is all about. One baby refuses to eat on account of a mechanical difficulty—he has a cleft palate or a harelip; another baby refuses food because he is suffering from an acute infectious process or an acute infection. The baby with pneumonia or measles or any other severe acute illness loses his appetite and cannot be persuaded to take food. We may assume, in the latter instance, that the loss of appetite is due to a toxic effect on the organism. Carlson tells of one of his students who succeeded in elevating his own temperature. He found that the hunger curves continued, but nevertheless he had no desire for food. No one can doubt that there are psychic causes, and also social conditions, which increase the tendency to anorexia. These cases occur most frequently with the pampered child, the sheltered child and the only child. Nevertheless, it has always appeared to me that this very important subject has been neglected by pediatricians. Much has been written about it, but to my knowledge no one has ever made an intensive study of this large and increasing number of patients.

DR. IRA S. WILE, New York: I am very glad indeed that Dr. Abt threw one gigantic question mark into the whole question of anorexia. We discuss it frequently as though it were an entity when it is merely a symptom, and a symptom of what? Dr. Abt has answered that question. Dr. Schlutz raised several questions; in the first place, the question of the relation of heredity. The relation between heredity and anorexia is probably no greater than the relation of heredity to typhoid or to juvenile paralysis, or to any other condition of that character, because after all one finds in the same homes and the same households under different conditions and at different times one child with a voracious appetite and another one evidencing a lack of appetite. The fact that families vary, that homes vary, that parental influences vary, and that parental patterns vary makes it possible to point out here and there suggestions that indicate heredity. But to group one class of anorexia as constitutional seems to me unwise and uncertain. Similarly, to raise the question and to state, for example, as Dr. Schlutz has done, that one group represents the problem child to a larger extent than the other seems an unfair classification. Whether we use his classification of the organic and functional or not is immaterial. One finds the so-called problem child in both categories. In fact, anorexia constitutes a problem and to that extent every child with anorexia, from the standpoint of the home, is a problem child or the physician would not be consulted regarding the problem. Therefore, it is unfair to group children categorically; to say that this group represents an asthenic and a problem child, and that group a nonasthenic, hence a nonproblem child. The problem is not the child. The child is suffering from some problem, whether the problem is in the home or in the physician. Dr. Aldrich asked the question how we got our ideas regarding the amount of milk that children should take. I am going to answer that question. We got them because physicians have been preaching for twenty years that every child ought to have at least a quart of milk every day. I disagree in one other phase with Dr. Schlutz. He has advocated his faith in cod liver oil. I have seen a great number of children with anorexia, of one type or another, become vomiters as a result of cod liver oil, and the cyclic vomiting that is so often referred to is by no means cyclic; it is purposeful and intentional. As one child said, with great wisdom, "You can make me take it, but you can't make me keep it."

DR. LANGLEY PORTER, San Francisco: I have been fighting the quart of milk idea for a great many years and have had a great deal of criticism for objecting to a child having to drink so much each day. I believe that 60 per cent of the children with anorexia will lose the anorexia if milk is taken away from them. Dr. Wile is an authority on the subject. I am only a retired general practitioner, but I can tell some things that I think about this matter of the anorexic child. One is that the problem has not very much to do with the child; it is a matter of education of the mother. Dr. Schlutz's presentation is forceful, and I am glad to see a real scientist who has delved into biochemistry come out and deal with a clinical problem. I think that if he would go out into general practice and meet

the mothers and the nurses, he would learn to look at this matter from a little different angle, and that is the angle of the psychology of the family. Of course, leaving out the group of children who are physically unfit, those who are infected and those who have cleft palates and other anomalies, and taking this group that Dr. Schlutz would call hyposthenic, there is, it is true, a small proportion who probably are hyposthenic because the fathers and mothers are hyposthenic, but only a small proportion. Clinical experience will prove to any one that the development of these behavior anomalies can be prevented. The mother should be taught from the earliest days never to talk about the child in its presence. It does not make any difference whether one is talking about food or anything else; the child should be kept in the background. It is the glare of the limelight that brings such children to this state of maladjustment in almost every case, and they arrive at it very early in life. If one can teach the mother that her child is not the only child that was ever anorexic, one has done a great deal for that child. A simple way to do that is to have a printed slip. When a mother begins to tell about her child not eating and not being willing to do this and that, one should take a printed slip out of a little box where there are twenty, forty or sixty such, and say, "This is the way children like yours are treated." The first line reads: "Never talk about your child in its presence." The other rules are equally simple, and they are known to every practitioner interested in child psychology.

DR. C. ULYSSES MOORE, Portland, Ore.: First let me say amen to the general condemnation of milk given in quart quantities as a basis for a balanced diet. It would be almost as logical to require a head of cabbage a day. A quart of milk, raisins and a head of cabbage may be advisable in one particular diet but surely not in all. One point apparently overlooked by Dr. Schlutz is the relation of clothing to appetite. Perhaps the most extreme case of anorexia in my experience was in a physician's daughter, 10 years old, an only child. No one had found anything organically wrong with the girl, but her health was so poor that they took her to California or Florida every winter. She ate so little that her mother still fed her at the table. The girl disliked milk and shut her eyes while her mother filled the glass and held it to her lips. In this way a quart was forced down. An examination revealed that the child was wearing wrist-length and ankle-length woolen underwear. This was removed permanently, the milk was taken away temporarily and then only a pint was allowed. The appetite and tissue turgor improved rapidly. A year later the physician said that if he had not seen it himself he would not have believed it possible to secure so satisfactory an outcome from two such simple measures. Dr. Schlutz has raised the question of starving children until they will eat what is given them. Before the days of allergic skin tests this was probably advisable. Now, we do not believe that such a procedure gives the child a square deal. A dislike for a certain food may be a whim or it may be the child's only way of protecting himself against a food to which he is hypersensitive. Since protein skin tests are now easily made and are quite reliable, it seems only fair to test out a disliked food before forcing it. The last point I wish to emphasize is the effect of the nerves on gastrointestinal conditions. The work of Hartzell at the Mayo Clinic and of Charles Mayo in cutting the branches of the vagi has shown a definite influence on the secretion of hydrochloric acid. Along this line the influence of the vitamin B complex on myelin degeneration of the vagus nerves brings up the whole subject of the relation of gastro-intestinal troubles to vitamins. The work of Barnett Sure and Hoobler and our own tests are so suggestive and promising that I should like to hear from others who may also be working along this line.

DR. CLIFFORD D. SWEET, Oakland, Calif.: When a mother comes to my office with this problem, I explain to her that feeding her child is a very important thing in her mind because it is part and parcel of her maternal instinct. It is therefore very easy for her to overemphasize it. Nearly every mother has in her mind's eye the ideal of a big child. She wants her child to be big, and nature did not mean him to be big. I am going to make a new table of weights and measures, but I am going to make it with dogs, not children. I am going to weigh some Great Danes, St. Bernards, hounds and so on down to the little terriers. I will then strike an average, plot a curve, and say, "Any dog is not doing well who is not up to that standard. The little terrier must consume the daily ration of the Great Dane—4 pounds of meat, six shredded wheat biscuits and a gallon of buttermilk and thereby come up to that average size." There are three reasons why a child does not eat: 1. He is sick. 2. He does not want food at that particular meal time. 3. By not eating he gets something which he values more than food, and that is the undivided attention of every adult member of his family. I say to mothers, "You have just five police duties in regard to your child and his food: 1. That you shall provide for that child regular meals. 2. That meals shall be of good quality. 3. That he shall come to the table with clean hands so he may handle his own food, and without too much attention being paid to his table manners, because eventually he is going to copy the table manners he sees, not the ones he hears about. 4. That he shall remain a definite length of time at the table; say thirty minutes, for example. There is a vast difference between saying to the child, 'You remain there,' and 'You must eat.' 5. And most important of all, that food shall be served without one word being said about the food."

DR. A. H. ROWE, Oakland, Calif.: Though food allergy is being suggested today as a cause of most symptoms which have not yielded to medical treatment, I feel as Dr. Moore has suggested that food sensitization at times is the cause of anorexia. Many of my records of children with asthma, eczema or gastrointestinal symptoms due to definite food allergy reveal a history of marked aversions to food to which skin reactions or diet trial have shown a marked sensitization. The mothers at times have forced the children to eat such foods not realizing that the children's dislikes were probably protective and that harm was resulting from such feeding. When the foods are removed from the diets to which sensitization exists, the mothers frequently report that their children have developed better appetites than they ever had previously. I would not say by any means that every child who has a poor appetite is allergic, but I do feel that food allergy, as well as other types of sensitization producing a general toxic effect, needs to be taken into account in certain children and infants who have anorexia.

DR. FRED W. SCHLUTZ, Minneapolis: It is apparent from the great diversity of opinions expressed in the discussion that the problem of chronic anorexia is complex. Dr. Ramsey mentioned the frequency of the condition. In my opinion, Bartlett's figure of 24 per cent of outpatient material is quite low. In answer to Dr. Abt, I would say that we must definitely differentiate between organic and functional anorexia. He stressed the necessity of doing more experimental work in the field; I agree with him. There have been some very valuable and interesting experimental studies. Hammet found marked changes in the nitrogen and carbohydrate metabolism of the adult. We are now supplementing our physiologic studies with some biochemical studies and are finding somewhat similar results for the child. Dr. Wile's comments are interesting. It has been our experience in the child guidance work in Minneapolis that most of the problem children who come to the clinic are to a large extent also asthenic and seem to give expression to some form of constitutional dyscrasia or diasthesis. In regard to cow's milk propaganda, the profession and workers in the field of nutrition are much to blame. Those who recommend it so strongly have, I am quite sure, not had a very large experience with the problem of chronic anorexia in childhood. I do not agree with Dr. Wile in his experience with cod liver oil. This particular form of fat is well borne by the asthenic and anorexic child; it is an exception in this regard to all fats and oils. Dr. Porter mentions the importance of environment. The successful correction of environment is, in my opinion, one of the first steps in the attack of the problem of chronic anorexia. Dr. Moore's remarks about vitamin B are interesting. He is doing some experimental work which seems to indicate that its presence has some definite connection with muscular function. It is well known from McCollum's research that it stimulates the appetite. Dr. Sweet has brought out some excellent points; I can endorse them entirely. Dr. Rowe spoke of the possibility of an allergic effect. I am not familiar with such effects. I have had the impression that there is still a great vagueness in the field of allergy. I have the impression that it cannot be a fairly universal cause of anorexia.

94
930

THE EXTRINSIC NERVOUS CONTROL OF THE LARGE BOWEL *

A. J. CARLSON, PH.D., M.D.
CHICAGO

What I have to present is not a completed piece of work. The literature on the extrinsic nervous control of the large bowel is contradictory. There is agreement on the point that the sacral sympathetic nerves carry motor fibers both to the circular and to the longitudinal musculature of the descending colon, the rectum, and possibly part of the transverse colon; but just where the sacral fibers cease to influence the transverse colon seems to be an open question.

There is disagreement as to the cecum, and the ascending and the proximal parts of the transverse colon. Some investigators assert that the nerve fibers from the hypogastric plexus and the hypogastric ganglion that reach the ascending and the proximal colon are inhibitory in function. Cannon makes the statement that the middle or the main portion of the transverse colon has no extrinsic nervous motor control.

We have investigated the problem in dogs and monkeys, chiefly dogs. What follows applies mainly to the dog. We cannot yet transfer the data to man, because there appears to be considerable variation in the extrinsic nervous control of the large bowel in the different species of mammals. Consequently, all of the available mammals, including the monkey, must be investigated before we can with fair probability transfer the data to man.

We used the balloon method in animals under soluble barbital or ether anesthesia. The balloon was placed in the descending colon through the rectum, and a second balloon was placed in the transverse colon through an opening in the appendix.

There is some discrepancy in the literature as to whether vagus efferent fibers, through the mesentery connections, reach and influence the large bowel. We are convinced, on the basis of many experiments, that vagus efferent fibers do not reach or influence the large bowel in the dog, but vagus motor fibers seem to reach the cecum and the appendix in a small region of the large bowel, close to the cecum in the monkey. The vagus motor and inhibitory fibers reach and influence the whole length of the small intestine in the dog, not through the wall of the intestine but by way of the mesentery connections.

Stimulation of the peripheral end of the hypogastric nerves has opposite effects on the ascending and transverse colon. If this portion of the colon is relatively atonic at the time, the stimulation induces a powerful contraction of both the circular and the longitudinal musculature. On the other hand, if this portion of the intestine is in a fair degree of tonus or rhythmic contractions at the time of the stimulation, the tonus and motility are inhibited.

Are we dealing with both inhibitory and motor fibers in the hypogastric, or are there opposite effects produced by one kind of afferents, the specific effect depending on the tonus or motor state of the intestine at the moment of stimulation? We cannot, at present, answer that difficult problem. But to clarify further what it implies, it should be recalled that there is in the large bowel and the rest of the intestine the Auerbach plexus, a local nervous system that may be compared to the spinal cord with relation to the skeletal muscles. We know that it is not so difficult to produce a cross reflex in the skeletal system. Irritation of a sensory nerve in the right arm or the right leg will produce skeletal responses on the opposite side. The kind of skeletal response on the opposite side depends on the position of the limb or the muscle as well as on the condition of the spinal cord at the time of stimulation.

Irritation of the sacral sympathetics in the dog produces a motor effect on the circular and longitudinal musculature over the entire large bowel. It is obvious that very powerful contractions of the longitudinal musculatures would mechanically move and pull on this region (the ascending and transverse colon), so that records from the balloon near the cecum might be entirely misleading. The sacral motor fibers produce a powerful contraction of the longitudinal bowel musculature in the dog. If, instead of using a balloon, the observer puts a finger through the cecum into the ascending colon, when the sacral nerves are stimulated, he can feel that the circular musculature contracts. It is not a mechanical pull; it is a motor innervation. This region, instead of having no motor innervation, has a double motor innervation (sacral and hypogastric).

We are interested in this problem, partly from its importance in physiology and medicine, partly in line with two other types of investigation that are going on in our laboratory. One of my associates (Dr. Quigley) has found that the gastric hypermotility in insulin hypoglycemia already known also occurs in the intestine. He has made the important observation that this hypermotility does not occur if the gastric vagi are severed. In other words, this insulin hypermotility of the stomach is due to the hypoglycemia acting on the motor system in the medulla. Another worker in our laboratory, Dr. Jacobson, thinks that by studious training and diligent application of voluntary relaxation he can diminish the spasm of the colon colitis. That is as important as it is difficult to prove. It is hoped that a better knowledge of the extrinsic innervation of the alimentary tract will help in the analysis of these and related problems.

University of Chicago.

ABSTRACT OF DISCUSSION

DR. P. J. HANZLIK, San Francisco: Unfortunately, I did not hear all of Dr. Carlson's paper, but at the end I got the point that the functional state of muscles is important in their motor responses. This point is important because it illustrates the probable nature of allergic responses in general and the idiosyncrasies to drugs in particular. Dr. Butt and I have studied the effects of nerve stimulation and of various drugs on the muscles of the esophagus; i. e., the crop, by a simple arrangement which records contractions of both the longitudinal and the circular muscles. An important result is that during a crop contraction, caused by a drug or vagus nerve stimulation, the injection of another drug intravenously caused an immediate relaxation of the crop muscle. Sometimes there was a complete reversal of the muscular contraction, the crop being distended far beyond its original diameter. Two general laws were discovered. The first was that muscle contractors differing physically and chemically from the original contractor caused muscular relaxation. The second was that the same muscle contractor, for instance, epinephrine, did not cause muscular relaxation. It did not seem to us that the alteration of the contractions to relaxations had any connection with the presence of inhibitory nerves, at least, not in the pigeon's crop. The effective agents were different physically and chemically and

* Read before the Section on Pathology and Physiology at the Eightieth Annual Session of the American Medical Association, Portland, Ore., July 11, 1929.

their seat of action in the normal crop was different; yet the response of the contracted muscle to them was the same; hence, the fundamental mechanism of the relaxations would appear to be the same, probably physicochemical. Our results with the contracted crop muscle correlate with many known cases of altered responses in pharmacology and with the effects of certain therapeutic agents used to overcome muscular spasms. For instance, epinephrine causes contraction of the normal uterus, but relaxes it in the so-called Bandl's ring contraction. The responses of the normal bronchi to epinephrine and to sympathetic nerve stimulation are nil, but epinephrine relaxes the contracted bronchi regardless of the nature of the stimulant. It seems to me that the implications in these intestinal and esophageal reactions are important, even though we cannot exactly explain their mechanism. They give us an experimental basis for the allergic responses and the peculiar reactions to drugs which are not understandable on the basis of innervation, or of their ordinary actions, the main thing being a change in functional state. Under this condition a different or an opposite response may be obtained, as is amply illustrated by muscular reactions.

DR. A. J. CARLSON, Chicago: I am very much interested in the work of Dr. Hanzlik's laboratory, and I agree essentially with his interpretation. I think he would also agree with me that there should be a modification of terminology. He spoke of the contraction or relaxation state of muscle. When we are dealing with an organ like the uterus or the alimentary tract, I think we should use instead of "muscle" the term "motor mechanism" because the entire local motor mechanism is probably involved.

DR. W. F. ALLEN, Portland, Ore.: Is it possible that the motor mechanism, say, of the intestine could be acted on directly by a chemical stimulus of any kind, independent of the rest of the nervous system?

DR. A. J. CARLSON: Could you give an example of what you mean?

DR. W. F. ALLEN: Supposing, for example, under fatigue (you had been working on your experiments for several hours) the chemical equilibrium of the blood had been altered; could that change act directly on the peripheral motor endings independently of the rest of the nervous system?

DR. A. J. CARLSON: In the first place, isolated loops of the intestine or segments, on the whole, will respond to various drugs outside the body in the same way as inside the body. But there is a profound point in the question, that if those same drugs or conditions acted and were capable of responding in every way in the central nervous system, the effect of that action on the intestine would in turn affect the sensory nerves in the intestine, which then would affect the central nervous system. Whether or not one is going to get that effect depends on the state of the central nervous system, and that of course hampers the physiologist. I have never been able to get profound reflexes from very gentle stimulation of the central nerves in animals. Several years ago I had an opportunity of using some of Drysdale's artificial symbiotic twins. Sometimes one of those twins would die, and the other one would be in fairly good condition. Then without anesthesia he could open up the dead, cyanosed twin and handle the living, normal intestine of the living animal. It was astonishing the effect he would get in that living animal by handling the intestine over to the dead body. He got responses that he never could see under the most carefully controlled physiologic experiments. Whether or not one can obtain those effects will depend on the condition, again, of the central nervous system. Is it in condition to respond? The pathologic conditions vary. We have recently found that in profound hypothyroidism in experimental animals, almost absolute cretinism is produced. There is such profound depression of the reflex excitability of the spinal cord and brain that some of the reflexes are entirely lost. One of the visiting workers in our laboratory this last year, von Reichberg, who has had extensive experience in the sensory field, attempted to prove that these animals have from 100 to 300 per cent reduction in sensibility of the feeling sense of the cornea. That apparently is not due to any injury to the pain mechanism but to the depression. In other words, we have to consider the state of the central nervous system in the same way that Hanzlik and I are studying the state of the peripheral mechanism. What reaction one obtains depends on the state at the time.

DR. W. F. ALLEN: It is important to know the state of a certain center in the nervous system in any experiment. After a state of fatigue has been reached, the conditions become entirely different.

DR. A. J. CARLSON: Research men have not taken that possibility sufficiently into account. A number of years ago Dr. Luckhardt and I found that a mere section of the vagus nerves puts some of the centers in the medulla in a state of "shock" that may last for hours, so that certain reflexes are not obtainable during that period. Previous to that we had always thought that so-called spinal shock could not be produced by sectioning of peripheral nerves—that it was essentially due to a direct lesion of the central nervous system.

KIDNEY FUNCTION IN MORPHINE ADDICTS

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The controversy over the effect of morphine on kidney function has long been unsettled and many physicians, particularly genito-urinary surgeons, are loath to give the drug even for severe pain, fearing that it will increase the dysfunction in an already impaired kidney. If their fears can be dispelled, their patients will derive the benefits of rest with minimized postoperative pain to aid in their recovery.

Slocum's [1] questionnaire brought out the conflicting opinions of surgeons generally. Ten per cent of the surgeons answering the question "Does morphine have a deleterious action on the kidney?" replied in the affirmative but did not explain why it was harmful, and 85 per cent answered in the negative. The article by Haines and Milliken [2] and that of Davis [3] showed not only that morphine might be used without fear of injuring the kidney but that morphine and atropine even accelerated and improved kidney function instead of causing postoperative retention, while Sisk and Beyer [4] finally and conclusively proved in a thorough study of the blood in many types of patients, genito-urinary included, that morphine had no deleterious effect on the kidney or on its function. It is hoped that this article will strengthen the belief that morphine given in therapeutic doses does not harm the kidneys of the patient or inhibit their normal function.

The charts of 197 Bellevue Hospital patients with acute and chronic morphine poisoning have been analyzed, and everything in the charts was studied to determine whether or not the patient presented signs or symptoms of kidney disease or dysfunction. These data included the age, history, physical examination, urinalyses and blood pressure readings. There were no records of a chemical study of the blood or of renal function tests, and few autopsy reports were available.

The first two factors have been considered recently by Sisk and Beyer in their series of cases. If there is no suppression, oliguria or edema, and if there are no other signs or symptoms of renal involvement and the urinalysis is negative after enormous amounts of

1. Slocum, M. A.: Morphine: Its Use Before and After Operations, J. A. M. A. **84**: 1264 (April 25) 1925
2. Haines, W. H., and Milliken, L. F.: Renal Function: The Result of Experimental Work with Morphine and Atropine, J. A. M. A. **85**: 1853-1855 (Dec. 12) 1925.
3. Davis, B. F.: Relation of Morphine to Postoperative Complications and Immunity, J. A. M. A. **66**: 252 (Jan. 22) 1916.
4. Sisk, I. R., and Beyer, W. S.: Effect of Morphine on Function of Kidney, J. A. M. A. **90**: 2082 (June 30) 1928.

morphine have been taken, the ordinary therapeutic dose used to control pain must indeed be a negligible factor.

The types of patients with morphine poisoning varied from some who were admitted comatose from their first dose to one habitué who through a period of twenty years had increased his dosage gradually until he was taking on admission 60 grains (4 Gm.) of morphine by hypodermic in twenty-four hours. Between the two extremes were all grades of addiction. All patients were admitted for their morphinism. Twenty cases complicated by pneumonia, tuberculosis, leprosy, syphilis, gonorrhea, cholangeitis and chlorine poisoning were not included. In the computations presented in table 1, 177 cases were considered.

There were fifty-eight cases of acute morphine poisoning and not one showed signs or symptoms suggesting urinary dysfunction; forty-seven cases (81 per cent) presented normal urine on analysis. There were 119 cases of chronic morphine poisoning and 116 cases (97.4 per cent) showed no signs or symptoms suggesting nephritis; in 106 cases (89 per cent) urinalysis was normal. Three patients (1.6 per cent) with positive urine showed signs and symptoms of nephritis clinically. One of the three complained of pain in the back and legs of five months' duration, accompanied by nocturia and burning on micturition. He had edema of the legs and a urine containing a few hyaline casts but no albumin or red blood cells. The second had polyuria, swollen ankles and a urine containing some granular casts and albumin but no red blood cells. The third patient had previously been operated on for a floating kidney.

Of 174 cases in which there were no clinical signs or symptoms of renal dysfunction, twenty-one showed some abnormal constituent in the urine (table 2). Sixteen patients were young people (19 to 37 years of age), three of whom had only a trace of albumin; one, a woman, had red blood cells and white blood cells; two had albumin and red blood cells; six had albumin and casts; four had albumin, casts and red blood cells. Of this group four showed high urinary sugar; one had a kidney stone; two had syphilis, one being a heavy drinker consuming from six to eight glasses of whisky daily, and one had optic neuritis with petechial hemorrhages in the skin. Two patients (over 57 years of age), one a drunkard, the other suffering from gonorrhea, showed slight albuminuria with casts. Three patients (age unknown) had albumin and casts. Thus the group of 174 contained four patients whose urine showed albumin, casts and red blood cells, eleven having albumin and casts, and two having albumin and red blood cells. None had edema, and all the blood pressure readings were found to be normal.

TABLE 1.—*Renal Function in Cases of Morphinism*

History, Physical Examination	Negative Urinalysis	Positive Urinalysis	Total
Negative for kidney dysfunction	153	21	174
Signs and symptoms of nephritis	0	3	3
Total	153	24	177

A urine showing albumin in the absence of red blood cells, casts and corroborative signs and symptoms of dysfunction seems insufficient as evidence of kidney disease attributable to morphine. The bladder and urethra may be the source of some of the urinary conditions and a certain percentage of the ordinary population would show abnormal urinary constituents from time to time. In the absence of signs and symptoms, negative urinary observations mean more in ruling out a diagnosis of nephritis and kidney dysfunction than does the presence of albumin, casts and red blood cells alone in establishing such a diagnosis. Moreover, of a group of 177 people admitted to a hospital, it would not be unusual to find a few nephritic patients whose disease is a result of the ordinary factors in nephritis.

Therefore, the evidence here presented favors the opinion that morphine does not have an untoward action on the kidney, which is in accord with the sentiment of the majority of surgeons who answered Slocum's questionnaire. Slocum concluded that the effect of morphine, if at all unfavorable, is very slight, and Davis stated that certainly its value as a sedative outweighs negligible disadvantages. Haines and Milliken showed that kidney function is improved by morphine and atropine in the usual hypodermic doses and that morphine given with ether prevents the inhibiting of kidney function that ether alone causes. Sisk and Beyer gave a record of the chemical changes in the blood of patients before and after morphine had been injected, showing that there is no dysfunction or change in kidney action in numerous types of cases. With the present series of chronic and acute cases of morphine poisoning exhibiting no evident signs of kidney disease obviously attributable to morphine, and with the evidence presented by other authors on other phases of the subject as a background, I believe that the old feeling against morphine should be abandoned and that this valuable drug should be used whenever indicated, so that the patient may be relieved if in pain and enjoy the benefits of sleep and rest after operation.

TABLE 2.—*Results of Urinalyses*

Age	Albumin	Red and White Blood Cells	Red Blood Cells, Albumin	Casts, Albumin	Red Blood Cells, Casts, Albumin	Total
19 to 35	3 (trace)	1	2	6	4	16
57 to 63	..	..	..	2	..	2
Unknown	..	..	..	3	..	3
Total	3	1	2	11	4	21

SUMMARY

1. Of 177 patients admitted for acute and chronic morphinism, 174, or 98.4 per cent, showed no signs or symptoms of nephritis or kidney dysfunction.

2. Seventeen, or 9.6 per cent, showed urine containing albumin, casts or red blood cells, but nine of these had diseases that might explain the finding in the urine, and none of the seventeen had signs of urinary dysfunction; eleven patients had albumin and casts; four patients had albumin, casts and red blood cells, and two patients had red blood cells and casts.

3. Three patients, or 1.6 per cent, of 177 exhibited signs, symptoms and a urinalysis pointing to nephritis clinically; one of these had a floating kidney, and one was presumably a cardiac patient.

4. There is no evidence to show that there is a constant relationship between the administration of morphine and the manifestation of kidney dysfunction.

5. Morphine should therefore be used whenever indicated without fear of renal complications secondary to its use.

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PRACTICAL ACCURACY AND CONVENIENCE IN TRIAL LENSES *

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AND
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In 1878 the sixth section of the American Medical Association, devoted to diseases of the eye, ear, nose and throat, was established and Herman Knapp made chairman. In 1879 the first meeting was held at Atlanta, Ga. From that time to this, the trial case and its use have never been the subject of a paper, or discussion, before this section. There has not been a meeting at which cataract and cataract operations have not figured on the program; glaucoma has almost as frequently claimed attention, and at every session new instruments are shown and discussed. But there has been no discussion of test lenses and the trial case, although every member uses a trial case more frequently than any other part of his armamentarium, and many use trial cases less suited to their actual needs than any operative instrument they would tolerate.

In 1891 George M. Gould stated before this section that 93 per cent of all his cases required correction of ametropia; since then the proportion of patients requiring glasses has been stated by men of wide experience to vary from 50 to 90 per cent. It is time that the largest annual gathering of ophthalmologists in the world thought about the subjective testing by lenses—the most important method of measuring ocular refraction—studied its theory, compared their experience with it, and formulated their ideas to secure for the trial set practical accuracy and a maximum of convenience.

The report last year to the American Ophthalmological Society by the Committee on the Power of Ophthalmic lenses, signed by W. H. Wilmer, W. E. Shahan and Alfred Cowan, puts the situation thus:

> There is much confusion concerning the subject of ophthalmic lenses from:
>
> 1. Trade propaganda.
> 2. (*a*) The practical effect of trial-case lenses differs widely from the best form of glasses usually prescribed and used.
>
> (*b*) The effective power of trial-case lenses, especially in the higher powers, differs widely from the best form of ophthalmic lenses available for prescription; and the neutralizing lens fails to agree with them. The difficulty arises from the geometric form of the lens.

To leave the planning and making of our trial cases to "scientific mathematicians, who have never used a trial case to examine a patient, and to lens grinders earning salaries from manufacturing opticians, is to allow things to go from bad to worse." At the annual session in San Francisco thirty-five years ago, a protest from the Philadelphia County Medical Society against advertisements in THE JOURNAL of medicines of secret composition sold under copyrighted names came before the Judicial Council of the Association. Before the next meeting the trustees had adopted a rule excluding such advertisements; and they established the Council on Pharmacy and Chemistry, which has had the widest influence in checking the sale of such proprietary medicines throughout the world.

The sale of lenses under copyrighted names which are made with curves that have never been published, and must be tested by special instruments put out by the manufacturers, is becoming a menace and a nuisance. It is to be checked only by attention to the curves of lenses by ophthalmologists who prescribe lenses, and the place to begin this needed reform is with trial lenses. The discussion of trial lenses therefore properly claims our attention.

PRACTICAL ACCURACY

There are differences between the accuracy needed for original investigation in the laboratory and the accuracy of the consulting room. The equatorial telescope and the micrometer eyepiece are important instruments in the astronomical observatory, but no one has attempted to sell them to the navy to replace the sextant and the mariner's compass in the hands of the navigating officers. The members of this section, however, have been compelled to buy the worst form of lenses in trial cases—the equal sided spherical lenses—because there was no other kind in the market. And it has been left to the makers of trial sets to inform us of this, through their advertisements of new forms of lenses, which they have made for sale under copyrighted names that place them on the same basis as "patent medicines."

Optical glass has been an important article of manufacture and sale for 400 years and, during the last 150 years, a subject of scientific examination and experiment. The Encyclopaedia Britannica lists twenty-two kinds of optical glass, varying in refractive index from 1.4959 to 1.7129, and more widely in dispersion. The invention of new kinds still goes on. The selling of spectacles made from glass of unknown composition, by secret formulas, is no more to be tolerated than the dispensing of secret proprietary medicines. It can be stopped only by establishing known standards of strength and curvatures for the lenses of the trial set—standards that can be understood and applied. When these are determined for the trial set, their use in the prescribing of lenses and the judging of lenses furnished on prescription will be comparatively simple.

The accuracy of any examination for correcting lenses will depend on the methods and skill of the examiner; but there are limits beyond which exactness cannot be carried. It is 250 years since Robert Hooke, in 1674, called attention to the 1 minute angle as the smallest separation between pencils of rays falling on the retina that could allow their recognition as coming from separate sources. In 1862, at the suggestion of Donders, Snellen and Dyer arranged a series of test types on this 1 minute angle, the whole letter subtending an angle of 5 minutes. Since these dates all the telescopic observations of astronomers, all work with the microscope, and the testing of millions of eyes with test types have shown that approximately this limiting angle holds for practically all normal eyes. This standard of good vision is accepted as correct to the limit of practical accuracy.

Our own observations indicate that, for patients with standard vision and good intelligence, the blurring of tests by the inaccuracy of one-eighth diopter in the focusing of light on the retina is the least they can ever perceive. For the majority of eyes this cannot be noticed; and in general a change of one-fourth diopter is the smallest degree of focus interval that will be of service in the subjective testing of refraction. In the objective testing of refraction by skiascopy, one-eighth diopter of error is the smallest amount that can be recognized by the expert skiascopist under favorable conditions; and one-fourth diopter is the least change

* Read before the Section on Ophthalmology at the Eightieth Annual Session of the American Medical Association, Portland, Ore., July 11, 1929.

that can be considered significant. To reach the possibilities of exactness in measuring refraction with test lenses, one-eighth is the minimum strength that can be used, and one-fourth diopter is the smallest interval of strength that can be furnished on the ground of convenience in use. If the lenses conform to these minima they meet the requirements of accuracy, either in the trial set or in the prescribed lenses.

The theory of refraction by lenses, as worked out by the mathematician, applies strictly to lenses that are infinitely thin, acting on rays parallel to the axis of the lens, falling on an infinitely small area about the axis. The facts are that all lenses of practical importance have some thickness and must receive rays that are not parallel to the axis and over an appreciable area about the optical center. No lens used for a microscope, telescope, camera or in spectacles can be made theoretically accurate. The question is: What departures from theoretical accuracy can be accepted, without sacrificing practical accuracy or the highest attainable convenience? The principal planes and points that enter into the theory of lens action deal with the problem of thickness of a lens, by using the conception of two thin lenses separated from each other. The obliquity of rays is met by turning the surfaces of the eye or the lens more nearly perpendicular to the axis of the pencil; and the area of incidence is limited by making the lens or the aperture smaller.

The refractive power, or strength, of a lens is the inverse or reciprocal of the focal distance. Any focal distance has to be measured from somewhere. For an infinitely thin lens there is but one point from which to measure it, the optical center. For a lens with practical thickness it is measured from one of the two "principal planes." For spectacle lenses the only practical thing is to measure focal distances from one of the surfaces of the lens. Opticians, concerned with the fitting of frames so that the lenses should not touch the lashes, naturally thought of the posterior surface of the lens. The ophthalmologist, who has to consider the relation of the principal points of the lens to the principal points of the eye, the principal focus of the lens to the focus conjugate to the retina, naturally thinks of the anterior surface of the lens, which can have its distance from the eye measured by an ordinary rule without special apparatus manufactured for the purpose. The opticians have gone ahead and estimated the refractive power of their lenses from the posterior surface, and the ophthalmologists have made the best of the system forced on them, although it compelled dependence on another instrument, the lens meter or lensometer, to find whether a lens prescribed had the required strength. The time has come when ophthalmologists need to think about these questions and insist on a system of numbering that shall be the simplest possible and shall apply to all lenses whatever the secret curves on which they are constructed, or the copyrighted names under which they are sold.

OBLIQUITY OF GLASSES TO LIGHT

The obliquity of the pencils of rays that enter the lens involves several effects of practical importance. At every point of a lens, except its optical center, a prismatic effect is produced. This effect varies with the inclination of the two surfaces toward each other and to the incident pencil. If a prism of any strength is held a few inches before the eye and looked through at a line parallel to the edge, or to the base of the prism, the displacement of the line as seen through it may be noted. Slow revolution of the prism around its edge or base will show the increased displacement. A 1 degree prism can be thus revolved until it produces the effect, or neutralizes a 10 degree prism, the deviation produced by the prism starting from the position of minimum deviation, and running up as far as one chooses. The prismatic effect of the lenses limits the correction of anisometropia and causes much of the trouble experienced by patients in "getting used to new spectacles." This undesirable effect is minimized by having the prism properly curved, so that, whatever direction it is looked through, it will be in a position of minimum deviation.

The focal distance and strength of the lens can be determined by taking a weak convex spherical lens and holding it perpendicular to a narrow beam of light, focusing the beam on a card, and measuring the distance of its most exact focus from the lens. Then if the lens is slowly turned obliquely to the light, it will be noted that the focus comes nearer to the lens, and changes from a point to an area of diffusion and to a line. The obliquity has caused the lens to act as a stronger convex lens, and as a spherocylindric lens. The focus has been brought closer to the lens; and the increase of strength is greater in the plane of obliquity than in a plane at right angles to the former plane, about which the lens has been revolved. In this way a plus 2 D. spherical lens may be made to focus the beam as a plus 4 D. spherical combined with a plus 6 D. cylinder, except that the rotated lens produces some distortion of the pencil of rays, to be classed as irregular astigmatism.

Such distortion of the pencil of rays occurs when the wearer of spectacles looks obliquely through them. It can be partly neutralized by choosing the best form of correcting lenses for the use that is to be made of them; by having the lenses mounted properly for that particular use, and by holding the head in a position that will secure for the lenses the least deleterious effects of obliquity. The objective of the physician who prescribes lenses must be the best strength, best axis, best form, or "coflexure" of the lens, and the best position of holding the head and object, unlimited by the economic factors, copyright interest and advertising campaign of the manufacturer, the fashion in shape, size or material in frames, or the vanity and whims of the patient. To approach this objective the ophthalmologist must understand the optics of the trial set and its use, and not be content with catchy phrases of the advertiser of lenses, or influenced by the favors received from opticians.

These effects of the obliquity of the incident rays were studied by the physician, physicist and philosopher W. H. Wollaston, more than a hundred years ago. They were also the subject of special study by Ostwalt, Percival (1904) and Tscherning (1905), whose curve of the coflexure of lenses is to be found in some of our books. But they have not been generally studied and understood by the physicians who undertook to prescribe lenses. Their practical importance and effects need to be recognized in the trial set and the ways of using it by all who undertake to qualify as experts in the defects and diseases of the eye, and in the essential conditions for good vision and its preservation.

No perfectly accurate trial lens, wholly to avoid the effects of looking through it obliquely, is possible. The nearest approach to accuracy can be made only by calculations based on a certain strength of sphere and cylinder required, a certain distance of the object looked at before the eye, the position of the center of rotation in the eye, and the distance the lens is to be placed in

front of it. A certain lens, calculated for vision at one distance, cannot be the best for another distance. No possible trial set of such lenses would exactly suit the two eyes of the same patient. Practical accuracy is all that can be aimed at.

The biconvex and biconcave, the worst possible form of trial lenses, are still the most commonly used for spherical lenses. "I am further informed by one of our largest manufacturers of optical appliances that about one plano lens is sold to five hundred double convex and double concave lenses for equipment of trial cases," was the statement made by the late A. E. Ewing, at the meeting of the American Academy held in St. Louis last October. Plano cylindric lenses have been used ever since Donders got them introduced in the trial case, almost seventy years ago; and Zehender [1] urged the superiority of plano spherical lenses for the trial case in 1866.

In 1887 a trial set of plano lenses was shown at the meeting of the American Ophthalmological Society, and this set has been in use ever since. These lenses were made 1 inch in diameter. Perhaps, on this account, being so radical a change from the ordinary size, 1½ inches in diameter, they were not appreciated.

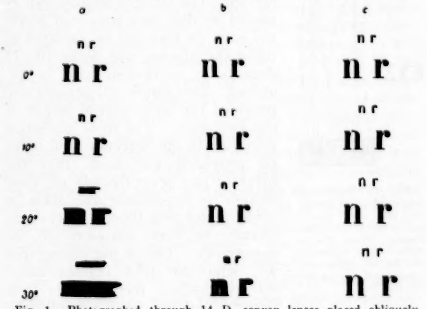

Fig. 1.—Photographed through 14 D. convex lenses placed obliquely. Numbers give degrees of obliquity: *a*, biconvex lens; *b*, best form spherical lens; *c*, katral lens. (Copied from Henker: Introduction to the Theory of Spectacles.)

Since then other sets of plano lenses have been made in this country, but the demand for them has not been sufficient to keep them continuously on the market. They cost rather more to make than the more common biconvex and biconcave spherical lenses. In 1926 the advantages of plano lenses were presented before the meeting of the American Ophthalmological Society. Our experience with such lenses proves their superiority for the trial set.

Meniscus lenses have proved their superiority for the great majority of our patients; but for the trial case a complete set of meniscus lenses is not practical. Even when specially calculated curves are used to give the best effect for a particular patient's eyes, their superiority is limited.

The plano lenses can be used for a trial set from which every kind of lens can be prescribed: and with them practical accuracy of focal correction and vision can be obtained, equal to that claimed for the highly specialized and advertised copyrighted lenses. Plano lenses are to be used in the trial set to which we call attention. Their practical equality with the best meniscus lenses is illustrated by figure 1. One cannot try the experiments described with prism and convex lens without seeing that the effect of increasing obliquity is at first imperceptible, then very slight, increasing more rapidly as the obliquity increases and becoming important in the extreme positions. In figure 1 a + 14 D. convex lens had been used; in the first column biconvex, in the second spherical, of a form almost plano, and easily reproduced with a plano set, and in the third a "katral" lens, the superiority of which it is intended to demonstrate. No superiority of the third column over the second is perceptible until an obliquity of 20 degrees is reached, and then it is but slight. This must be remembered in connection with what is known about turning the eyes from the primary position.

When using trial lenses the ophthalmologist should watch to see that the eye looks through the test lenses near their center, receiving rays very nearly perpendicular to the surface of the lens and so not perceptibly affected by obliquity. But if the patient should look as obliquely as he could through a lens of the size that we propose, the obliquity would be less than 25 degrees and would cause barely perceptible blurring from a 14 D. lens. Even with a 20 D. lens the obliquity at the edge would be little more than 30 degrees and would cause no more interference with distinctness than is shown at the bottom of column 2. Without any attention on the part of the ophthalmologist, it is entirely improbable that even this would occur.

The experimental work of Fischer [2] based on observations on 600 persons, while their eyes followed a moving object, showed that at the beginning the eyes turned while the head remained fixed, but that, before the turning reached 12 degrees, most of them began to turn the head in that direction, and that in all cases the head turned before 18 degrees was reached. As soon as the head turned any glasses worn, either in the trial frame or in spectacles, would turn with the eyes. It is very unlikely that even the large glasses which have been put out as the latest style (to give place in a few months to something later) have materially changed the habit of turning the head when the change of position of the object looked at was more than 18 degrees. The slogan "clear to the very edge" is likely to be given up before it produces any change of habitual eye movements. But even the extreme refinements of lens making can be made available to our patients as easily and certainly with plano trial lenses as with any set that would tie down the ophthalmologist to lenses of a single manufacture.

Of course plano lenses in a trial set must be used with regard to the "rule of reason," which applies to all meniscus lenses and is generally understood by opticians. The convex side is turned from the eye and the concave side toward the eye, and the optical axis of the lens is placed as nearly as possible in the direction of the visual axis of the eye. Glasses that are to be used for both near and distant vision should be faced down about 15 degrees. Then, on looking horizontally, or looking down 30 degrees for near work, the visual axis will not be turned more than 15 degrees from the axis of the lens.

SIZE OF LENSES

The outside diameter of the lenses should be 1¼ inches, or 31.75 mm., with trial frames to fit them exactly. If they were much smaller than this they would be less convenient to handle. Trial lenses of the usual size, 1½ inches in diameter, are needlessly thick and heavy. The 20 D. lens of the usual size has to be 8 mm. thick, and three times as heavy; while the

1. Zehender: Klin. Monatsbl. f. Augenh. **4**: 7, 1866.

2. Fischer: Arch. f. Augenh. (Graefe's) **113**: 394, **115**: 49, 1924.

size we propose is only 5 mm. thick. The lesser weight of all the strong lenses is noticeable and agreeable to the patient. The still smaller sizes, down to 15 mm. in diameter, that have been recently used for some test lenses have this advantage of diminished weight. But they contract, unnecessarily, the field of vision and space through which the patient's eye must be watched, while the decreased weight of glass scarcely compensates for the increased weight of the flat ring in which they must be mounted.

The ring, or rim, in which the lens should be mounted is essentially the form chosen by Dr. John Green, in 1880, having a flange to be placed as nearly as practicable in the plane of the plano surface of the lens. This flange should be at least 2 or 3 mm. wide, a width that leaves the clear diameter of the aperture of the lens full 25 mm. Each ring should have a convenient handle in the plane of the flange. So mounted, the lenses can be accurately applied together in the trial frame for combined effect.

The handles for the cylinders must be placed 45 degrees from the cylinder axes, so that one cylinder or the other of each pair can have its axis accurately placed in any meridian. If desired the flanges can be broader, up to 6 mm., for the stronger lenses, leaving an aperture of 18 mm. The handle renders superfluous any milling on the edge of the flange, or any special mechanism to revolve the cylinders. The full freedom of revolution for the cylinders requires attention to certain details in the trial frames.

TRIAL FRAMES

One advantage of the lenses and their mountings as just described is that they can be used with lighter trial frames. The weight of the trial frame has been a hardship for the patient that often has not been appreciated by the ophthalmologist. Patients who have repeatedly had their eyes tested with the usual trial frame often speak of the comfort of the lighter frame. It is not merely a matter of comfort. The wearing of an uncomfortable frame, pressing on points of the face unaccustomed to such pressure, distracts the patient's attention from the effect of changes of lenses before the eyes, which is the important thing in all subjective testing of refraction. Such pressure helps to produce a sense of fatigue and restlessness, which interfere with the accuracy of such testing. The use of aluminum in trial frames has been associated with increased bulk of the frames that almost balanced the use of the lighter metal, and makes the use of such a frame less convenient.

We have had most satisfaction from the use of steel wire frames weighing not over one-half ounce. These had no scale indicating the direction of the cylinder axis, which was read from a protractor; but the large size of its scale, 4 inches in diameter, made it more accurate than any scale that has been placed on the trial frames. The peculiar advantage of such trial frames is that, without unnecessary weight to be supported on the face, they make possible and easy the combination of two or more lenses before the eyes in the most effective and convenient manner.

The manner of combining lenses in such a frame is shown in figure 2, which represents an anteroposterior section of such a frame and the lenses placed in it, through the hooks, or the grooves which hold the lenses. In a case of aphakia, for example, requiring for its correction + 14 sph. ⊃ — 4 cyl., the + 14 sph. and — 4 cyl. are placed in the back groove, with plano surfaces together, the — cyl. toward the eye. A strong convex lens may be placed in the front groove. The fact that the latter is 8 mm. in front of the main convex lens will make no practical difference in the combination, that distance adding about 1/50 D. to the strength of the combination. If all changes of lens strength were to be made by taking out of the frame the lens or combination of lenses before the eye and substituting another, this arrangement would not be convenient. But there are important reasons, apart from convenience, why more than 90 per cent of changes in lens strength before the eye should be made in a different way, by supplementary lenses.

To secure centering of the lenses in the trial frame, an adjustable width of front is not essential. It is necessary only to have three widths of front, in these wire frames, to give all the approximate centering that is of practical importance in the great mass of cases. These provide for widths between centers of 58, 62 and 66 mm. If exact centering is desired in any case, it may be secured by placing a prism of suitable strength in one of the grooves. For making the lenses perpendicular to the visual axis, whether looking at a distance or looking down for reading, no elaborate mechanical adjustment is needed. The straight temples can be placed so that they pass just above the ears, or they can be elevated to make the glasses face down the 15 degrees or more that may be required. This simple adjustment also provides for asymmetrical height of the two ears. The most elaborate provision in one direction will make no provision for needs that the inventor has never thought of, even though its importance may soon be evident, and even though others may already be very conscious of its importance. This is the reason that we, who use trial frames daily, should discuss their merits and defects, and not leave them to the makers of trial frames and to the few who try to improve them as seen from a peculiar, individual standpoint.

Fig. 2.—Section of combined plano lenses, showing them placed in grooves of trial frame. From left to right, —6 D. cylinder; + 20 D. spherical; prism, and convex additional lens.

SUPPLEMENTARY LENSES

To attain the highest accuracy in the measurement of errors of refraction, the effects of slight changes must be tested many times and under conditions most favorable for noting slight effects. Such tests must be made with supplementary lenses and should be provided for in the trial case. The supplementary lens is one held in front of the trial frame and the lenses in it, so that it can be removed and replaced many times, with the greatest convenience; and so that the *changes from one lens combination to another will be instantaneous.*

The flat handles on the lens rims furnish the means of using any of the lenses in the trial case as supplementary lenses. Thus, the handles of a plus 5 and a minus 5 spherical lens may be held between the thumb and finger, so that their edges just come together; and with a slight movement first one and then the other may be brought before the pupil, twenty times a minute, the succession being instantaneous. With accommodation absent, this may give a positive indication of hyperopia or myopia, even though the refraction is very irregular, the media clouded, or the retinal function much below normal. Weaker lenses used this way will be more frequently helpful; and it is generally

worth while to have the plus and minus fourth, half and one diopter mounted together, in the special rim, for this use.

Prisms can be used in the same manner. Supplementary batteries of prisms have been so used, although not always containing the most practical selection of strengths or arrangement of the apparatus. But the most important supplementary lens is the cross cylinder. With it the change in astigmatic effect is instantly reversed by the turning of the handle. This can be done with cylinders of sufficient strength, and repeated often enough to make the patient's answers positive and convincing as to the change needed to make the cylindric correction most accurate. The strengths most generally useful are the plus and minus 1, 0.50 and 0.25 D., and they are to be used in the order of their strength, beginning with the strongest.

These supplementary lenses add so enormously to the certainty and efficiency of the trial set that they should be included in every trial case.

LENSES NEEDED IN THE TRIAL CASE

With a trial case capable of holding combinations, as indicated in figure 2, a complete trial set will include: sphericals and cylinders in pairs, every eighth diopter to 1; every fourth diopter to 4; half diopters to 6 cylindric and 8 spherical, and each diopter spherical to 16; single lenses, each diopter cylindric, 7, 8, 9 and 10 D., and spherical, 17, 18, 19 and 20 D. By the combination of lenses in this series, in the frames and manner already indicated, it is easy to secure intervals of one-eighth diopter up to 10 D. spherical or cylindric; and sphericals by fourth diopter intervals to 24 D. and half diopters to 28 D. Still higher refractive corrections are possible, but these will illustrate that such a trial set is adequate for any case likely to be encountered. The series of prisms should be numbered in centrads, prism diopters, or by refracting angle, as 0.5, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 12, 15, 20 and 30. The weaker prisms, up to 4 or 6, can be in pairs. Square prisms requiring a square-celled frame have some advantages, but not for all uses. The advantage of having a certain number of lens or prism represented in the trial case, without having to resort to a combination, depends on the frequency with which it is used. This is the determining consideration in one's choice of such a series of lenses or prisms.

314 Fourteenth Street.

ABSTRACT OF DISCUSSION

DR. WALTER B. LANCASTER, Boston: The authors state that the manufacturing opticians are no better than the manufacturing pharmacists who put on the market "patent medicines." This is very unfair. The making of spectacle lenses is very different from the making of proprietary medicines, because the maker of proprietary medicines claims to cure certain conditions. When I order spectacle lenses I do not care very much how the lens is made. The manufacturers employ expert designers who calculate the best form of lens. They are quite willing to show the results of these calculations. They do not make any particular secret of it. What do we care what ingredients are put into optical glass? We want a good quality and we are willing that the optician should use any good glass that he can find. We can find out what its index of refraction is and what its transmissibility is.

The question of the best form of lens has come up many times. Drs. Jackson and O'Rourke would have us measure from the front surface of the lens. If we decide to do that, we are scrapping a large amount of good work that has been done on the other basis—the basis of measuring from the posterior surface.

Another question the authors bring up is the matter of neutralizing or measuring the strength of the lens in the proprietary lenses, and the fact that we have to use for this the instruments made by manufacturing opticians. We have to use them if we want to make accurate measurements, whether the lenses are point focal lenses or Tillyer lenses or other copyright lenses, or even if they are ordinary lenses.

Concerning the question of obliquity, the authors point out that 30 degrees is an excessive amount of obliquity. It is, for looking in the horizontal plane to right or left, but if one wears bifocal lenses one habitually looks down at a much larger angle than one looks laterally without moving the head. Thirty degrees is named by the French authorities as the standard obliquity for bifocals. If the reading lens is weak, tilting or obliquity is unimportant.

Drs. Jackson and O'Rourke state that placing an 8 diopter lens 8 mm. in front of another lens adds only one-fiftieth diopter to the total power. I tried to calculate the effect of moving an 8 diopter lens 8 mm. forward and it seemed to me that it added more than one-half diopter to the effective power.

I think it is perfectly proper and fair to invite the cooperation of the manufacturing opticians in improving our lenses. The plano lens is better than the biconvex, but it is not the best form, and if we are going to change why not adopt the best form? All the scientists who have studied this matter, except Drs. Jackson and O'Rourke, are agreed that the best form is not the plano but some form of deeper meniscus. The authors have pointed out that to have the best form for every power would require the manufacturing opticians to have an enormous number of dies. This is true. Many more dies are needed and if the manufacturer is willing to make these in sufficient number to reduce the departure from perfection by a smaller fraction than ever before, we ought to be pleased that a so much better product is available even if we did not originate it and have in the past advocated another form of lens.

DR. EARL WHEDON, Sheridan, Wyo.: I want to mention one little idea in connection with the improvement of trial lenses. We are all confronted with this difficulty. We often have trial cases in which the plus lenses are nickel plated and the minus lenses gold plated, but the different colors cannot be seen in the dark room when the retinoscope is being used. Perhaps some one has mixed up the trial case and the plus lenses are on the minus side. I have adopted the system of taking the plus lenses and filing notches across their edges, so that when I pick up the lens and feel these notches I know that I have a plus lens. If I reach to the minus side of the case and feel a roughened edge I know it is a plus lens, and on the other hand if I am working on the plus side of the trial case and feel a smooth edge I know there is a mixup. That little change I think is a practical convenience and the makers of trial frames could easily mill or roughen the plus lens and thus aid us in our work.

DR. WALTER B. LANCASTER, Boston: With bifocal lenses, in order to look through the wafer one has to lower one's line of vision, and is not that ordinarily a movement of more than 12 degrees? If one has a flat lens with the bifocal wafer on the lower part, the difference between ordinary vision through the center of the lens at distance and the vision through the wafer at near is more than 12 degrees. It is true that one does not ordinarily rotate the eyes more than 12 degrees from the center either right or left, but with bifocal lenses one has two parts of the lens to look through, and in looking through the wafer are not the eyes rotated vertically more than 12 degrees? With a book measuring about 175 mm. (7 inches) from the top to the bottom of the printed page and held at about 350 mm. (14 inches), the angular distance from bottom to top is 27 degrees, and if, without moving the head, one raises the eyes from the bottom of the page to look over the top of the book say 25 mm. (1 inch) which, allowing for the margin of the page, is at least 50 mm. above the top line, one rotates the eyes 33 degrees. This one would rarely do but would divide the movement between the head and eyes, often, however, moving the eyes as much as 15 degrees.

DR. WILLIAM H. CRISP, Denver: A segment which is so far below the line of direct vision that it requires the eyes to move more than 15 degrees before they look through the seg-

ment is placed too low. My own experience points strongly to the fact that most of us are putting the bifocal segments too low, so that the patient must look obliquely through the segment in order to read. I instruct my patients to learn to use the segment high. I tell them to form the habit of looking at the ground as they walk, not over but through the reading lens. If a patient is taught to do that he will learn to use the segment so high that when he looks straight ahead he is looking only a little above the segment. With such an arrangement it is entirely unnecessary to allow for turning the eyeball strongly down during reading.

DR. EDWARD JACKSON, Denver: If the medical profession is to keep pace with the developments of science, we must avoid prescribing things that we do not know anything about. We should not help the owners of trade secrets by sacrificing scientific medicine to proprietary and secret remedies. I believe it is as important with reference to glasses as it is to drugs.

As to whether we should measure from the anterior or the posterior surface, the anterior surface is the easy surface from which to measure. I do not know that there is any good reason for adopting the posterior surface, except that the distance from the lashes must be considered. The optician has to mount the glasses far enough forward so that the lashes will not rub the glass. But the anterior surface is certainly better in some other respects. As the meniscus is increased, the principal points are changed and the change with the stronger lens is toward the anterior surface. In the strong lens in which error might be important, it is best avoided by working from the anterior surface rather than the posterior surface. With the plano posterior surface and convex anterior surface, the nodal points come right to the anterior surface of the lens. With the concave lens, in the center of the lens the posterior surface approaches practically to the anterior surface.

Fifty years ago the opticians in Philadelphia understood the importance of avoiding obliquity to the extent that if glasses were mounted for near work they were faced down, so that the perpendicular to the glass would be in the direction that the near work would be held. If they were mounted for distance (we designated whether they were for distant or near work) they were made to face directly forward. If we wanted to be more exact we designated how many degrees they should be made to face down. It is not necessary to go 15 degrees away from the perpendicular to look through any well mounted lens. The Tillyer lenses and all lenses of that sort are based on the idea that the lens will be placed about 28 mm. in front of the center of rotation of the eye. Thirty degrees from the center would be looking 14 and a fraction millimeters either up or down. Of course, the optician will take into consideration the position in which the patient holds the head, and adjust to that in his mounting. That ought to be considered by the optician and also by the ophthalmologist sufficiently for him to criticize the work of the optician in all these respects. With the test lens in the trial frame, it is perfectly easy to raise the frame with a straight temple and adjust the lenses so that they will be perpendicular when they face down 15 degrees or more.

DR. DONALD H. O'ROURKE, Denver: The keynote of the proposition which Dr. Jackson and I have offered is not a theoretical accuracy that may be figured with pencil and paper by an expert mathematician, but practical accuracy as we use it every day in our test lenses. The point we made particularly is that there has been a great deal said and written on the subject of eye movements. There has been very little written on the conjugate motion of the eyes in relation to the other portions of the body, particularly the head. We have recently come in contact with some work that Fisher, a German, did about five years ago. He showed conclusively in a large number of patients (600), examined both for distance and for near vision by moving pictures and by the ordinary projected lantern slides on a screen, that the movement of the eyes bears a very definite relationship to the movements of the head. The movement of the eye, after it reaches a point 12 to 18 degrees from the position of rest, whether for distance or near, sets up a reflex action which in turn moves the head in the same direction. The practical significance of this particular point is that if the eyes do not move more than about 15 degrees ordinarily, or even in extreme positions of the head 20 degrees, the rotation of the head has a practical bearing. The eyes are not habitually used for looking at more than 15 to 20 degrees from the midline, either at the near point or for distance, and just as soon as the eyes have deviated 15 degrees, on the average, from the midline, the head is rotated in the same direction. This reflex movement of the head occurs in the use of the eyes not only in lateral positions but also in vertical positions. Therefore from a practical standpoint the mathematical correction of spectacle lenses, for oblique pencils of light, to the extreme edge of the lens, has no real practical advantage. These facts concerning the movements of the eyes and head can be easily demonstrated by the simple device which I showed at the beginning of this session, and which I will not take the time to redescribe.

DISLOCATIONS OF THE CERVICAL VERTEBRAE

REPORT OF THIRTY CASES *

MITCHELL LANGWORTHY, M.D.†
SPOKANE, WASH.

Seventeen cases of bilateral dislocation of the cervical vertebrae, and thirteen cases of unilateral dislocation, which I have treated with excellent results by the reduction manipulation of Walton, are here reported. These

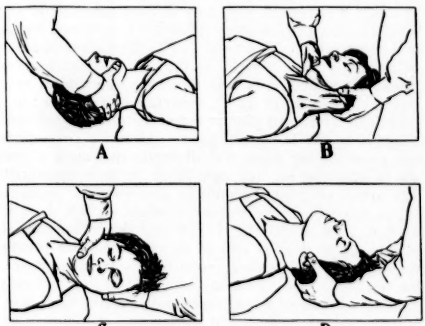

Fig. 1.—Steps in the manipulation as done to reduce a left-sided dislocation between cervical vertebrae: *A*, the side of the hand used as a fulcrum, over which the head is bent to the right as in *B*; *C*, head rotated to the left to complete the reduction; *D*, head hyperextended to prevent redislocation.

thirty cases have occurred in private practice in nine years, so that the conditions cannot be called rare. These are instances of dislocation only, without fracture. The manipulation as I do it is described here, and a summary is given of practical points in diagnosis and treatment based on these cases and done without reference to the experience of others, which may, or may not, be similar.

THE METHOD OF REDUCTION

Walton's method aims to replace the articular facets that have slid apart. To dislocate, the facet of a cervical vertebra slides upward on the facet of the vertebra next below, and catches on the top of the lower facet or slips over into the intervertebral notch in front of the lower facet. If only one facet dislocates, it is unilat-

* This article has been abbreviated here by the omission of several case reports and illustrations. The complete article will appear in the author's reprints.

* Read before the Section on Orthopedic Surgery at the Eighteenth Annual Session of the American Medical Association, Portland, Ore., July 10, 1929.

† Dr. Langworthy died, Oct. 8, 1929.

eral; if both, a bilateral dislocation occurs. To reduce a left side dislocation, the head is first bent toward the right shoulder to disengage the facets; that is, to lift the upper facet out of the intervertebral notch of the lower. The head is then rotated to the left to throw the upper facet back, and down to fit on the lower facet. The movements are reversed for the right side. One side at a time is reduced, a separate manipulation for each side being carried out in the bilateral cases. I use the edge of my hand as a fulcrum on the opposite side of the

Fig. 2 (case 1).—Dislocations of cervical vertebrae before and after reduction by manipulation.

neck from the lesion when bending the head laterally to disengage the facets. In some of the older lesions great force in this part of the manipulation is required, and the edge of the hand on the opposite side of the neck aids in lifting the displaced facet and prevents a lateral pushing of the whole head and neck toward the shoulder which is not effective. It is important to throw the head back into hyperextension and to keep it there, as soon as the dislocation is reduced, in order to prevent redislocation. A plaster cast is applied in the position of hyperextension, including the head, neck and chest.

In many cases the reduction is easy. In the other cases, considerable force must be applied quickly. In the bilateral cases a roentgenogram is made after each attempt. The first attempt is made with little force. If not successful, more force is used. As many as four attempts have been necessary, the last made with great force, before securing reduction. This force must be applied in a definite way. No violent pulling or twisting on the head should be done. Force, if necessary, is applied for an instant to raise the facet and then throw it back. For the left side, for instance, the head is bent easily to the right as far as it will go; then, with the edge of the right hand strongly against the right side of the neck, quick force is applied to bend the head still farther to the right, and at the point of maximum application of force, before relaxing the stretch on the left side of the neck, the head is rotated quickly to the left. The object is to lift the upper facet for an instant and to throw it back on the lower facet at the moment when it is raised. I have used practically my full strength in this maneuver without harm.

Anesthesia with muscular relaxation has been used in all cases, except when the patient was in severe shock. Manipulation is done with the patient lying on an ordinary table. He is pulled up so that head and neck are off the table, to allow free manipulation with hyperextension of head and neck following manipulation. The anesthetic mask is removed during the manipulation. It has been successful in accomplishing reduction in every one of the thirty cases encountered.

REPORT OF CASES OF BILATERAL DISLOCATION

In each of the seventeen cases which follow, roentgenograms showed the lesion before and after reduction. Only the lateral views are of importance. Line tracings of these roentgenograms are shown here because the films themselves are difficult to reproduce in detail, especially in small size. The manipulation was done under general anesthesia except when stated otherwise. Only positive symptoms of importance are noted.

CASE 1.—E. M., a woman, aged 55, four days before examination fell downstairs, striking her head on the floor. Immediate pain and stiffness in the neck continued. There were no other complaints. Examination showed that the disorder was in the neck, where any movement caused severe pain. There was no evident deformity. A roentgenogram showed forward displacement of the first on the second cervical vertebra. Fracture of the odontoid process was not evident. Four days after the injury, reduction was done. The patient was put to bed with sandbags around the head. A roentgenogram four days later showed reduction maintained. The patient was up and around in two weeks. There was complete recovery, except for a slight degree of stiffness, in three months.

CASE 5.—L. S., a man, aged 25, in whom the exact injury was uncertain, one week before began to have pain and stiffness in the neck. This came on while driving a truck which he was backing up repeatedly. He twisted his head to look behind him many times. He had to discontinue work after a few hours. He stayed in bed for a week because of pain in the neck which was unrelieved by heat and rest.

Examination showed trouble only in the neck. All movements were limited except rotation to the right. Flexion was most limited. There was pain on all movements. A slight numb feeling was present over the right shoulder. There was no sensory or motor loss. The patient had a little difficulty in swallowing. A roentgenogram showed the third cervical vertebra forward on the fourth. Seven days after onset, reduction was done. A cast was applied and kept on for six weeks, and there was complete recovery in three months.

CASE 9.—E. P., a man, aged 33, whose head and neck were given a severe jerk in an automobile accident twenty days before, had immediate pain and stiffness in the neck which persisted. He noticed also slight weakness in the use of his arms. Attempted reduction of cervical dislocation by his own physician two weeks after injury failed. Examination showed his general condition to be good. He walked about well. There was weakness in abduction of the arms. The head was held forward. All neck movements were limited by severe pain. A roentgenogram showed the fifth cervical vertebra markedly forward on the sixth. Reduction twenty days after injury was secured with difficulty. Several manipulations with increasing force were failures. The attempt made with great force was successful. A cast was applied with the neck in extreme hyperextension. The cast was removed six weeks later. There was excellent recovery in two months except for slight limitation of neck movements.

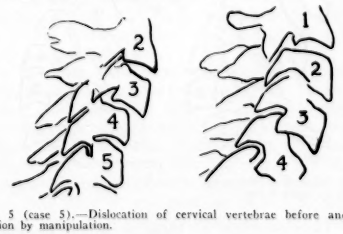

Fig. 5 (case 5).—Dislocation of cervical vertebrae before and after reduction by manipulation.

SUMMARY OF CASES OF BILATERAL DISLOCATION

Bilateral dislocations between all of the cervical vertebrae are represented: one case of the first on the second, three cases of the second on the third, one case of the third on the fourth, three cases of the fourth on the fifth, six cases of the fifth on the sixth, and three cases of the sixth on the seventh cervical vertebrae. Lesions in the upper and lower cervical regions were equally dangerous. Eight of the seventeen

patients showed serious spinal cord injury. Five of these died. Twelve patients recovered, recovery being complete in all except one, in whom there was redislocation ten weeks after reduction (case 17). The mortality was 30 per cent.

I see no reason for not reducing all of these cases by manipulation. It does not hurry death and may prevent it.

When the patient is in severe shock, reduction can and should be done at once without anesthesia.

A plaster cast, including head, neck and chest, should be applied after reduction in all cases. A small plaster collar will not prevent redislocation. Hyperextension position of the head and neck is necessary to maintain reduction. Roentgenograms should be made immediately after manipulation to check reduction and also immediately after application of the cast. The vertebra may slip while the cast is being put on. Pillows and sandbags can be used to keep the head in hyperextension, if for any reason the plaster is inadvisable. In that case, frequent lateral roentgenograms should be made to check the vertebra.

Reduction was accomplished as late as thirty-three days after injury.

REPORT OF CASES OF UNILATERAL DISLOCATION

In the thirteen cases which follow, the diagnosis of unilateral dislocation of a cervical vertebra was made. This diagnosis was based on the symptoms and the fact that manipulation resulted in cure. The lesion cannot be shown by roentgenograms. Drs. Ward and Betts, roentgenologists, have made a number of studies with films taken from different angles. We have worked out some views on the skeleton, and have obtained some interesting data. From a diagnostic standpoint, however, these are of no value. The unilateral dislocation is largely a rotation, and the vertebral profile is little altered. The chin and jaws are in the way for certain views. Rotation of the neck to get the chin and jaws out of the way is prevented by the lesion itself. Conflicting shadows from the opposite side make the interpretation of certain views impossible. The joint spaces between the various vertebrae lie in different planes. No single view catches them all even in the normal

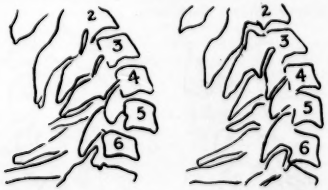

Fig. 8 (case 9).—Dislocation of cervical vertebrae before and after reduction by manipulation.

neck. Demonstration of these unilateral dislocations remains a challenge to the roentgenologist.

The only exception to the preceding remarks is the unilateral dislocation of the atlas on the axis. The standard view through the open mouth shows the joint spaces between the right and left facets of these vertebrae. In a unilateral dislocation, one of these spaces is obliterated. Three of the thirteen cases showed this perfectly. The roentgenogram, therefore, verifies the diagnosis, and the reduction only in a dislocation between the first and second cervical vertebrae. It is hoped that further study will bring out the lesion between the other vertebrae.

Manipulation was done under general anesthesia in all cases.

Only positive symptoms of importance are noted.

CASE 19.—R. S., a woman, aged 35, had immediate pain and stiffness in the neck following a jerk of the neck caused by sneezing as she reached up to turn on a light, the morning of examination. Any movement caused severe pain in the lower right side of the neck. The head was held bent to the left with the chin to the left. She was put to bed with heat to the neck. The next day there was more pain with very limited

Fig. 12 (case 28).—Dislocation of cervical vertebrae before and after reduction by manipulation.

bending and rotation to the right. Roentgenograms were negative. Twenty-four hours after injury, under anesthesia, movements were still limited as before. Reduction was done for right-sided dislocation. Movements were immediately free. The patient was allowed to wake up; the position of the head was normal, and she could carry out all movements without pain. A plaster cast was applied and worn for three weeks. There was complete recovery in four weeks.

CASE 28.—T. M., a boy, aged 5, six days before was shaken by a big boy who grabbed him by the neck. The next morning his parents noticed that the head was crooked and the neck stiff. There had been constant pain so that he had been lying down most of the time since. Examination showed the head tipped markedly to the right, with the chin to the left. All movements were limited by pain. There was marked tenderness on pressure in the upper part of the neck posteriorly to the right. Roentgenograms showed in the view through the open mouth a loss of the joint space between the atlas and axis on the right side. There was no fracture of the odontoid process. Manipulation was done six days after injury to reduce the right-sided dislocation. A distinct click was heard accompanying the reduction. Immediate roentgen examination showed a normal relation of the atlas on the axis. A cast was worn for three weeks and in another week the patient was entirely well.

SUMMARY OF CASES OF UNILATERAL DISLOCATION

All thirteen cases of unilateral dislocation were treated by manipulation, with recovery from symptoms in all. Manipulation done as late as eight months after injury was successful. No harm from manipulation or from repetition of the manipulation has been noted in any case.

I see no harm in manipulation even if the diagnosis was wrong if the roentgenograms did not show any fracture or disease.

The causation may be a minor injury, such as sneezing.

Roentgen observations being so largely negative, a close study of the position of the head and the particular movements of the neck which are limited is important. Muscle spasm or shortening, as in a congenital torticollis, is not observed. The principal symptoms are, first, a crooked position of the head, which is tilted to either side with the chin rotated to the same or opposite side and, second, limited lateral bending of the head to one side with limited rotation to the same or opposite side with other movements usually free.

Neurologic symptoms, as from spinal cord or nerve root injury, were not present in these cases.

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193

Lacking verification by roentgenograms, the test of reduction in these cases is freedom of movements which were limited before manipulation. Movements, therefore, should be carefully checked under anesthesia before manipulation is done. A spontaneous reduction may occur under anesthesia, which makes manipulation unnecessary.

To be perfectly sure of preventing a redislocation, a plaster cast should be applied. This has occurred during sleep the night after reduction, and as late as ten weeks after reduction. Many patients, however, get well without the cast. Spontaneous reduction following injury may occur during natural sleep.

No arthritic changes were shown in the roentgenograms in any of these cases. Stretching of adhesions, rather than reduction of a dislocation, is to be thought of in certain cases.

Paulsen Medical and Dental Building.

CORRECTION OF COMPRESSED FRACTURES OF THE VERTEBRAE*

JOHN DUNLOP, M.D.
AND
CARL H. PARKER, M.D.
PASADENA, CALIF.

Compression fractures of the vertebrae are attracting considerable attention at this time, and many are being recognized early. This is no doubt due to the fact that only in recent years have lateral roentgenograms of sufficient clearness to be of value been available.

At the last session of the American Medical Association, Dr. Eikenbary of Seattle presented a complete summary of the treatment of compression fractures up to that time. Since that paper, Dr. Davis of Erie, Pa., presented as his thesis for the last meeting of the American Orthopedic Association a method of reduction for compressed fractures, and this paper was

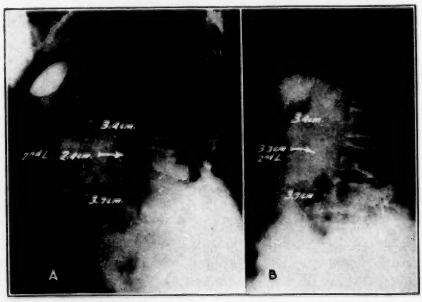

Fig. 1 (case 1).—*A*, appearance of spine before reduction; *B*, sixteen months after reduction, with the patient back at work.

published in January, 1929.[1] Prior to knowing of Dr. Davis' work, we had undertaken to decompress such fractures, and had been successful as early as October, 1927.

It is our purpose at this time to demonstrate that compressed impacted fractures of the vertebral bodies can be reduced with restoration of the normal form of the vertebral body; also that these healed bodies maintain their shape when the patient goes about his normal activities. Our roentgenograms demonstrate that this normal form has been maintained by the rebuilding of new bone, so that the vertebral body attains nearly, if not perfectly, its normal structure.

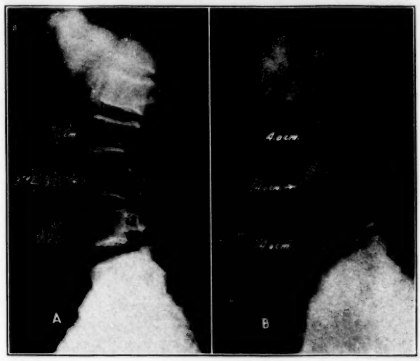

Fig. 2 (case 2).—*A*, appearance of spine before reduction; note impaction. *B*, condition of spine after removal of cast, six months after reduction.

The reduction of these fractures is accomplished by forcible hyperextension of the back, while strong traction and counter traction are applied to the body. The traction is obtained by two men pulling upward on sheets which are passed diagonally across the chest and under the arm of the opposite side; the counter traction is furnished by two men pulling downward on the ankles.

The patient is placed under an anesthetic in the supine position, and a sheet folded to a width of 6 inches is passed beneath the injured segments. The operator and his assistant then toss the patient straight up and catch his weight on the taut sheet while the strong traction is applied to the body. Care is exercised to keep the back in a position of hyperextension. A body cast is then applied with the patient lying on a Goldthwait frame. The procedure may be repeated several times if it seems necessary.

It is important that these fractures be reduced if possible, since the disability is considerable. According to Lovett and Jones, "an injury of the back may be attended by more serious, widespread and demoralizing symptoms than occur in the injury of any other joint." Eikenbary also emphasized this disability, especially in his review of the industrially injured. In the past, nothing was done at the time of injury to prevent symptoms such as backache, localized pain, hyperesthesias, numbness and stiffness.

In all of the modern textbooks little importance is attached to the subject of the treatment of compressed impacted fractures, about the only suggestions being methods of fixation of the deformed spine, in the hope that rest, obtained in one way or another, may accomplish the desired result. But how can such methods of treatment, by braces and internal fixation operations, prevent or correct symptoms due to mechanical malalinement or nerve pressure? It is evident that simple fixa-

* Read before the Section on Orthopedic Surgery at the Eightieth Annual Session of the American Medical Association, Portland, Ore., July 10, 1929.

1. Davis, A. G.: J. Bone & Joint Surg. **11**: 133 (Jan.) 1929.

tion cannot remedy these important conditions. The history of fractures affecting other parts of the body conclusively demonstrates that results are improved by proper reductions. The present series of cases is inadequate as a basis for drawing definite conclusions, but the impressions derived from observing these patients lead

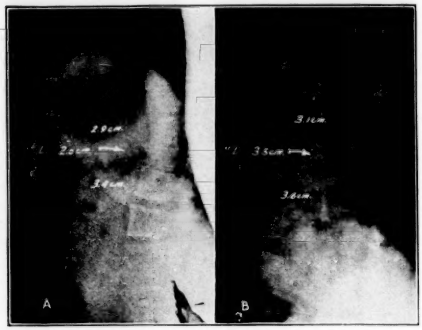

Fig. 3 (case 3).—Appearance of spine: *A*, before reduction; *B*, one month after reduction, with patient in cast.

us to believe that, with decompression and the restoration of normal alinement, the recovery is more nearly complete.

The frequency of compression fractures in industrial accidents makes this injury of great importance to industrial surgeons. In the past the injured man has received compensation over a long period, and in addition has been given a permanent disability rating. If, by this method, the results can be definitely improved, a part of this serious load will have been lifted from the insurance carrier.

The psychologic element is of great importance. Individuals suffering broken backs regard the injury as

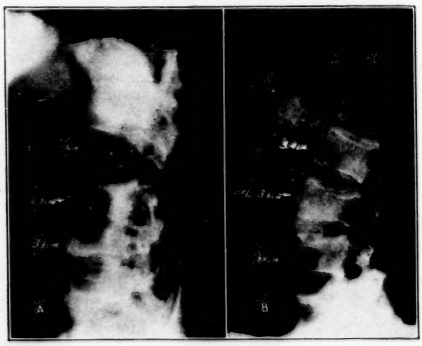

Fig. 4 (case 4).—Appearance of spine: *A*, before reduction; *B*, one month after reduction, with patient in cast.

one of great severity, because in years past only the severe cases with cord involvement have been given publicity as broken backs. Now with the help of the x-rays, the patients can be shown that a reduction has been accomplished, and they can be assured by the physician that recovery will be complete. This phase of treatment is of special importance to the industrial surgeon. The man who has been injured in an industrial accident feels that some one else is "to blame," and that he should be taken care of until all chance of serious disability is past. Here again the demonstration of the roentgen evidence should prove to be a useful lever to pry the men back to work. Will not surgeons likewise have greater confidence that the result will be satisfactory?

It has been assumed for years that it was not a safe procedure to attempt any manipulation of the injured spine because of the danger of injury to the spinal cord, but we have found that this is not the case. The safety of the procedure depends on the following considerations:

1. The articular facets of the vertebrae remain intact and give stability.

2. The strong traction tends to restore normal alinement.

3. All applied force is in the direction of hyperextension; the patient is never in flexion during the procedure of reduction.

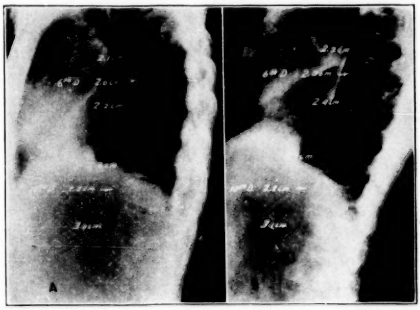

Fig. 5 (case 5).—Condition of spine: *A*, before reduction; *B*, four days after reduction, with patient in cast.

Even when there has been a fracture of the articular facets in addition, allowing lateral dislocation and overriding, satisfactory results have been attained with relief of the symptoms of cord pressure.

The success of the manipulation in the uncomplicated cases of compression fracture depends on intact articular facets, the strong anterior longitudinal ligament, and the firm attachment of the intervertebral disks to the bodies of the vertebrae. In our limited series, the best reductions have been accomplished when the injury was below the ninth dorsal vertebra. Only partial reductions have been obtained in the middorsal region. Theoretically, this may be due to the rigidity of the thoracic portion of the body. It may be added that in a number of instances there has been an incomplete decompression laterally, when a complete reduction of the anterior margin of the body has been accomplished.

Since we have done this work, it has been accomplished successfully by two other surgeons, Dr. Frank Hodgdon and Dr. Laurence Chaffin.

Our series is composed of twenty-one cases. The eight cases reported here are typical of the results obtained.

REPORT OF CASES

CASE 1.—Our first reduction of a simple compressed fracture was done Oct. 10, 1927, in Miss L., aged 56. Figure 1 *A* shows that the body of the second lumbar vertebra was compressed from below upward with some fragmentation. The measurements from the x-ray department showed about 1 cm. compression. That the height was retained is apparent in figure 1 *B*, taken sixteen months after the injury. This patient had numerous other fractures but walked about four months after the accident. The measurements in this case are presented in table 1.

Fig. 6 (case 6).—*A*, before reduction; *B*, two weeks after reduction.

TABLE 1.—*Measurements in Case 1*

	Before Reduction	One Month After	Nine Months After	One Year and 4 Months After
1st lumbar.....	3.4 cm.	3.5 cm.	3.4 cm.	3.4 cm.
2d lumbar.....	2.4 cm.	3.4 cm.	3.3 cm.	3.3 cm.
3d lumbar.....	3.7 cm.	3.8 cm.	3.7 cm.	3.7 cm.

CASE 2.—F., a man aged 33, treated July 17, 1928, had a compression fracture of the third lumbar vertebra, with a small fragment at the upper anterior margin, less in vertical height than the one above it, and irregularity of the upper border. The measurements are given in table 2.

TABLE 2.—*Measurements in Case 2*

	Before Reduction	One Week After Reduction	Two Months After	Six Months After
2d lumbar.....	4.0 cm.	4.1 cm.	4.1 cm.	4 cm.
3d lumbar.....	3.6 cm.	4.1 cm.	4.1 cm.	4 cm.
4th lumbar.....	...	4.1 cm.	4.1 cm.	4 cm.

There was comparative improvement of height and of form, although there was still some irregularity of the upper margin.

This patient is of especial interest because of his weight and the heavy type of work which he does. He has been on his feet since Dec. 16, 1928, and returned to work as a motorcycle officer April 16, 1929, and so far the form of the vertebra has been retained.

TABLE 3.—*Measurements in Case 3*

	Before Reduction	After Reduction
12th dorsal.....	2.9 cm.	3.1 cm.
1st lumbar.....	2.0 cm.	3.5 cm.
2d lumbar.....	3.4 cm.	3.6 cm.

CASE 3.—Mrs. C., aged 45, seen Dec. 17, 1928, had a compressed impacted fracture of the first lumbar vertebra, with considerable compression of the body and a buckling of the anterior margin. The comparative height of the body before and after manipulation showed a difference of 1.5 cm. The interesting feature of this case was the severity of the smash and compression. The corrected form was almost normal and has been maintained. Measurements are given in table 3.

CASE 4.—H. G., aged 52, seen March 4, 1929, had a compression fracture of the second lumbar vertebra. Operation was performed March 14, at the Los Angeles General Hospital. The neurologic observations were weakness of the extensor muscles of the legs and feet. No paralysis was present.

TABLE 4.—*Measurements in Case 4*

	Before Reduction	After Reduction
2d lumbar.....	3.3 cm.	3.4 cm.
3d lumbar.....	2.3 cm.	3.6 cm.
4th lumbar.....	3.8 cm.	3.8 cm.

This case also demonstrates that a portion of the body may be raised and another portion remains impacted. This has been true in two or three cases of the series and the portion remaining impacted is always the lateral border.

CASE 5.—Miss V. W., aged 29, seen May 1, 1929, had a compression fracture of the tenth dorsal vertebral body. Neurologic observations were normal. Operation was performed at the Los Angeles General Hospital, May 5. The measurements before and after reduction are presented in table 5.

TABLE 5.—*Measurements in Case 5*

	Before Reduction	After Reduction
5th dorsal.....	2.1 cm.	2.2 cm.
6th dorsal.....	2.0 cm.	2.3 cm.
7th dorsal.....	2.2 cm.	2.4 cm.

CASE 6.—E. J., a man aged 40, seen April 28, 1929, had a compression fracture of the seventh and eighth dorsal vertebrae. Operation was done May 3, 1929. The measurements are given in table 6.

TABLE 6.—*Measurements in Case 6*

	Before Reduction	After Reduction
6th dorsal.....	2.5 cm.	2.6 cm.
7th dorsal.....	1.3 cm.	1.5 cm.
8th dorsal.....	1.7 cm.	2.2 cm.
9th dorsal.....	2.5 cm.	2.6 cm.

This case represents the highest level I have attempted and demonstrates that the difficulty in getting results increases the higher the area is involved.

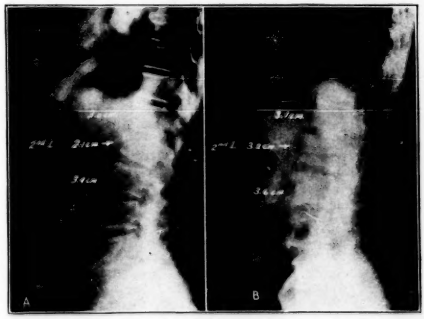

Fig. 7 (case 7).—*A*, before reduction; *B*, five days after reduction.

CASE 7.—S., a man aged 59, seen Jan. 4, 1929, fell 12 feet from a wall and sustained a compression and impaction of the first lumbar vertebra. The comparative height of the body before and after the manipulation shows a difference of 1.5 cm.

This case shows a very severe type of compression, more marked on one side than on the other. Following reduction the

compression was almost entirely overcome; there is, however, some deformity of the anterior margin of the vertebra bulging anteriorly 2 mm., and of the upper cortical surface, there being a difference in the amount the two sides of the upper surface were lifted.

TABLE 7.—*Measurements in Case 7*

	Before Reduction	After Reduction
1st lumbar	3.0 cm.	3.1 cm.
2d lumbar	2.1 cm.	3.2 cm.
3d lumbar	3.4 cm.	3.6 cm.

TABLE 8.—*Measurements in Case 8*

	Before Reduction	After Reduction
11th dorsal	2.5 cm.	2.5 cm.
12th dorsal	1.8 cm.	2.9 cm.
1st lumbar	2.9 cm.	3.0 cm.

CASE 8.—N. G., aged 39, was seen March 1, 1929. Reduction was done, March 2. The measurements before and after are listed in table 8.

63 North Madison Avenue.

ABSTRACT OF DISCUSSION

ON PAPERS OF DR. LANGWORTHY AND DRS. DUNLOP AND PARKER

DR. C. F. EIKENBARY, Seattle: I am grateful to Drs. Dunlop and Parker for bringing before us this method of treating the compressed fractures of the body vertebrae. I think all of us must realize that the treatment of the compression fractures of the vertebrae, up to the present time, anyway, has been most unsatisfactory. Some may not agree with that, but it has been my own experience that it has been most unsatisfactory. Last year before this section I gave a report on about 120 patients that I had seen, part of whom I had treated and part of whom I had examined, and in many of whom graft operations and fusion operations had been done. In not a single case in which a fusion operation was done was the man able to go back to hard work. The only patients who were able to go back to hard work were those who were treated conservatively. Drs. Dunlop and Parker present a method that apparently restores the body of the vertebra to its original form. It seems to me that this is a method that may probably give satisfactory results in cases in which the results in the past have been poor. In connection with Dr. Langworthy's paper I wish to make about four important points. The first point is in regard to cervical dislocation. It is a common injury, particularly the unilateral type. The bilateral is not uncommon. The second point is that the injury may be very slight, so slight that it seems impossible that such a dislocation could be caused by it. The third point is that a man may have a bilateral dislocation with apparently half or two thirds of the body of the vertebra displaced and not manifest symptoms except a little pain in the neck. These patients usually do have symptoms, but many of them do not have any. The fourth point is that the method *par excellence* of treating these cases is by manipulation and not by traction.

DR. F. A. CHANDLER, Chicago: We are greatly indebted to Dr. Eikenbary and Dr. Davis for their pioneering in the application of the principles of fracture to the compression fractures of the vertebrae. They have demonstrated that reduction is possible, and in selected cases desirable, for the correction of this deformity. Such demonstrations will do a great deal toward dispelling the state of unwarranted apprehension regarding spinal injuries now held by many of the profession and most of the laity. Good lateral roentgen films are most essential in determining the type and degree of injury to the vertebral body, but it must be remembered that the best of films often fail to reveal the full extent of the injury. Compression fractures of the vertebrae probably do not occur without some injury to the spinal elements posteriorly. If compression forces are such as to compress and impact the vertebral bodies, one may expect to find bone or ligament injury posteriorly. The articular process may be fractured, the ligamentous structures torn or, if these remain intact, a fracture of the lamina and spinal processes may occur. In these cases the injury is seen only at early operation. The anterior and posterior longitudinal ligaments remain intact and have been utilized by the author to obtain and retain correction of the deformity. The osteogenic power of the soft cancellous bone of the vertebrae is great and correction of the deformity should be maintained by the firm callus. It has been my observation that, because of the lesions associated with the compression fracture, a condition analogous to a localized arthritis develops at the site of the injury. If this is so, the hazard of the arthritic spine survives, and dysfunction of vertebral elements results. There is no question about the gross fractures being serious, and in almost all of the cases the laminectomy is indicated at an early date. In cases in which the injury is not so great, the possibility of spontaneous reduction of fracture or dislocation must be considered. The strong ligaments and muscles usually survive the injury and are useful in maintaining reduction, especially if placed under slight tension. The mechanics of correction of a dislocated vertebra are contrary to the correction of the fault by traction alone. Manipulation must disengage the interlocked processes or further dislocation will result. Lesions between the occiput and the first vertebra are rather uncommon. These probably are most frequently in the nature of ligamentous tears. Ossification of the ligaments may show up at intervals of several months following.

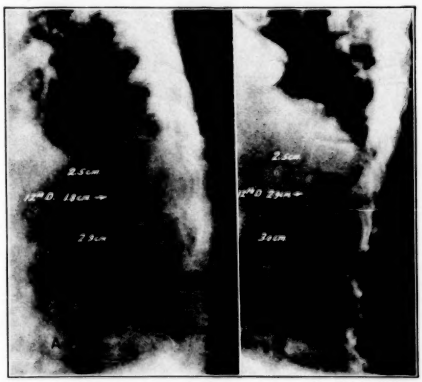

Fig. 8 (case 8).—*A*, before reduction; *B*, three days after reduction.

DR. E. J. BERKHEISER, Chicago: We have heard about these dislocations of the cervical vertebrae and we have also heard that they are frequently not diagnosed and that they cause few subjective symptoms. Most of these cases have been associated with trauma, but in three cases we were not able to elicit any history of trauma.

DR. E. T. EVANS, Minneapolis: I think that a subject of this kind presented before the profession at large should call for more stress on the indications and contraindications. The indications must rely on a careful study of roentgenograms. In the mechanics of the spine Drs. Dunlop and Parker stress the importance of the articular process. I noticed from a study of Drs. Dunlop and Parker's pictures of the spine the number of cases that they treated. At the end of five or six weeks these patients are able to bear weight, but we must remember in these cases the condition of the soft bone and we must support the spine over a long period until the architecture of the body is restored.

DR. R. T. CONGDON, Wenatchee, Wash.: There is one point that is so apparent that it would seem perhaps unneces-

sary to bring it up. In reducing or attempting to reduce a cervical dislocation or a dislocation of a cervical vertebra which is complicated by fracture, it is sometimes quite easy to feel the parts slip back; one feels a little click. One may feel so certain that reduction of the dislocation has been completed that one may neglect to take check-up roentgenograms before applying plaster cast or collar. It is never safe to vary from the usual procedure. In one case I did not have the roentgenogram taken after attempted reduction and was much chagrined to find later that reduction was not complete.

DR. MITCHELL LANGWORTHY, Spokane, Wash.: The problem of the slight trauma in connection with these dislocations has been brought up, and in order to make it a little more emphatic I want to quote from one of the case reports in which the roentgenogram showed a markedly forward displacement of the third or fourth vertebra. This patient at the onset of his trouble said that he did not hurt his neck and that he did not remember any injury. I asked him what he was doing and he said that he was driving a dump truck and it happened when he was backing up to dump some load off. He said that he had been turning his head first to the right and then to the left as far as he could all morning and part of the afternoon. It was our assumption that this man in twisting his head to the right and to the left produced the displacement. This was one of the bilateral cases. One can see that the etiology is often slight trauma. In connection with the remarks of Dr. Congdon as to checking up with roentgenograms, I think the easiest and the most obvious way of doing that is to do the manipulation in the x-ray room. We do it on the stretcher. As soon as the manipulation is done, without pulling the patient back on the stretcher, one should let his head hang back over the end of the table, run the tube up and make the lateral roentgenogram right then. In connection with the cord injuries, I think the fact is evident that the displacement of the vertebrae as usually shown does not of necessity injure the cord. I think that what happens is that the displacement goes farther, momentarily causing injury to the cord, and then settles back to where we see it in the roentgenogram. Some of the men have spoken to me about being afraid of doing manipulations. I did not have time to go into all the details, but in all of these cases we have not had any trouble with manipulations. In the most serious cases, in patients who have been knocked out by severe injury, manipulation can be done without anesthetics and without disturbing the patient. It can be done right there and there is no reason why it should not be done if it is done along the exact lines we have outlined.

DR. JOHN DUNLOP, Pasadena, Calif.: We keep these patients on their backs for four months or until the roentgenograms show that there has been bone regeneration. Then they wear a brace for a year. As to the tearing of the ligaments and the fracture of other portions of the spine, I think it is difficult to say that the spinous ligaments are torn.

Etiology of Mucous Colitis.—While there can be no question, therefore, that there are a number of factors entering into the etiology of mucous colitis, this condition manifests itself mainly in individuals prepared by an instability of the nervous system. The vegetative nervous system supplies two sets of nerve fibers to the gastro-intestinal tract, the one functioning as activator and the other as inhibitor nerves, the two combined exhibiting a regulating mechanism controlling the interactivity of both groups. In the first set we have the parasympathetic system, the stimulation of which results in the production of increased secretory and motor activity of the bowel leading to excessive formation of mucus and to colic. In the second set we have the inhibitory fibers as found in the sympathetic system stimulation of which inhibits secretion and motor activity. The action of the two systems is antagonistic; however, under normal conditions a state of equilibrium exists which results in normal function of secretion and motility of the colon. When this state is interrupted, in that there is overstimulation of the parasympathetic system or inhibition of the sympathetic, secretion of mucus and painful spasm may occur.—Friedenwald, Julius; Feldman, Maurice; and Rosenthal, L. J.: *Ann. Int. Med.*, December, 1929.

RAGWEED DERMATITIS: WITH SENSITIZATION AND DESENSITIZATION PHENOMENA

REPORT OF CASE

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AND
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The prevalence in this country of the plants known as short and giant ragweed, together with the propensities of these plants for causing allergic conditions in human beings, is too well known to require further elucidation here. Allergic asthma and hay-fever due to ragweed are among the commonest disorders seen

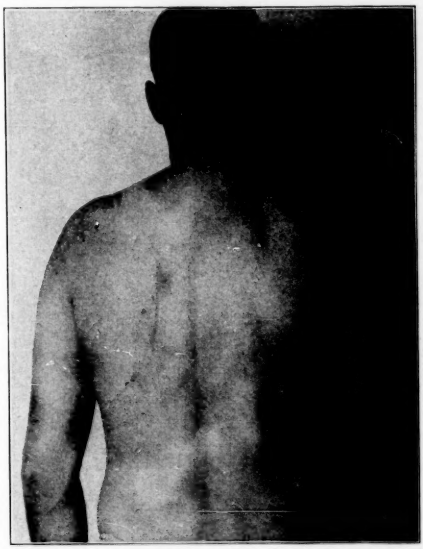

Fig. 1.—On right shoulder, site of first contact test with ragweed allergen; lesions in involution. On left, fresh reaction to second contact test with ragweed allergen.

by general practitioners and by specialists. Skin tests, consisting of a superficial scratch to which an extract of the pollen of the plant is applied, are in universal use to determine the sensitiveness in the patients in question.

It does not seem necessary here to go into detail concerning the technic and evaluation of the tests, on account of the voluminous literature dealing with these points.

Another fact which has frequently been observed and reported is that allergic asthma and hay-fever are often combined or associated with eczematous and urticarial eruptions of various types, occurring either in the same patient or in the patient's family. The ragweed allergens also cause such pathologic skin conditions.

As early as 1919, Sutton[1] devoted a paper to the subject of ragweed dermatitis. However, on account of several additional and unusual elements we deem the following case worthy of being recorded:

REPORT OF CASE

J. E., a man, aged 40, an insurance agent, residing in a country district, was seen, June 7, 1929, because of a skin disease that had been recurring in the late summer and fall for the last ten years. There was no history of familial allergic disease. The disorder usually began in the latter part of August and continued until the end of September, and had this year appeared earlier than usual. The patient himself attributed the first onset of the disease to a contact with "pollinated corn" to which he had subjected himself by walking through cornfields ten years previously.

At the time of the first examination, the patient appeared normal and healthy except for the lesions to be described.

There was marked dystrophy of the toe nails of both feet, which, the patient said, had existed since birth and which apparently had no connection with the skin condition that led him to seek treatment.

The cutaneous disorder was an itching, papular and vesicular erythematous eruption, consisting of rather sharply circumscribed areas showing marked redness and distinct grouped vesicles and papules, each not exceeding two pinheads in size. The groups of these elements covered areas varying in size from that of a dime (18 mm.) to that of a silver dollar (38 mm.) and larger.

The lesions were on the back of both feet, on the shins and calves, on the flexor surfaces of both arms, and on the neck and upper portion of the chest. Both eyelids were slightly swollen and reddened. Beyond these lesions the skin was normal.

June 24, the patient was tested by Dr. Hector MacNeal of the skin clinic of the Post-Graduate Hospital, with the pollen of a large number of the plants to be found in this vicinity, including giant and short ragweed, timothy, corn and cocklebur. These tests were performed by the usual scarification method, and gave an absolutely negative result.

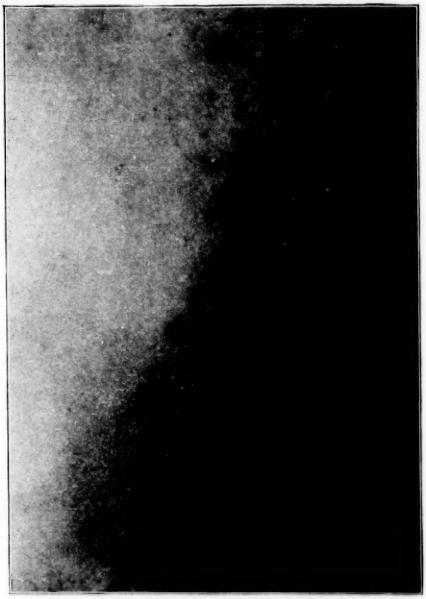

Fig. 2.—Close view of reaction to ragweed allergen contact test. The perpendicular streaks and lower lesions were caused by the running down of liquid when test was applied, and by some of the fluid being held by the borders of the adhesive plaster.

On the same date and with the same substance, tests were performed by the contact method; i. e., that which is known as the functional skin test of Jadassohn or the eczema skin test of Bloch.[2] This consists in applying the substances in question to the uninjured skin and keeping a continuous contact during twenty-four hours.

Twenty-four hours after the contact tests, there was a marked reaction at the site that had been in contact with the short ragweed allergen. The area that had been submitted to contact with this allergen showed a sharply demarcated redness and swelling and was covered with small vesicles. At the site of the contact test with cocklebur there was slight redness. A repetition of these tests on other areas, August 5, gave the same results.

From June 8 to August 9 the patient was treated with local roentgen rays and applications of soothing and protecting lotions. There was no marked improvement and a fresh attack of vesicles on the left side of the neck occurred on August 9.

At this stage it was decided to attempt desensitization with ragweed allergen. This was not done in the usual way by subcutaneous or intramuscular injections of increasing doses of the allergen, but instead of this it was decided to attempt desensitization by the intradermal route. In other words, the procedure was the same as usual except that the site of injection was changed from deeper tissue or subcutis to the most superficial part of the skin which it is possible to reach in injection treatment.

The remaining therapy was continued as described. From August 9 to September 4 the intradermal injections were given approximately three times a week. The initial dose was 0.1 cc. of Lederle's "Ragweed Pollen Allergen" dose 1 in one area, and this was gradually increased, the final dose being 0.1 cc. each of dose 10 in three areas, totaling 0.3 cc.

August 30, the patient received 0.1 cc. each of dose 9 intradermally in three areas. While no well defined reaction was observed at any of the injection sites, the site at which the contact test to short ragweed had been performed, August 5, and which, prior to the injection, could not be distinguished from the normal skin, flared up about fifteen minutes after the intradermal injection.

During the "flare up" the site of the old test presented a definite, sharply demarcated redness corresponding exactly in size and shape with the old skin reaction. The redness persisted for about fifteen minutes and gradually subsided.

September 4, after completion of the course of intradermal injections, the patient was again tested by contact with ragweed allergen and did not show any reaction.

He was discharged September 5. There had not been any new lesions since August 23. The subjective symptom (itching) had practically subsided and the old lesions were in the process of involution.

COMMENT

It seems to us that three points are worthy of special notice:

1. The patient gave completely negative reactions to all tests by the scratch method and did not show the slightest urticarial reaction to any of the substances employed, while he was strongly positive to ragweed when applied by simple contact. Had only the first method of testing been used, the condition would have had to be classified as an eczematous dermatitis of unknown etiology. The contact tests, however, brought to light the fact that we were dealing with an allergic condition and that the strongest probability exists that the patient's disease was due to a sensitiveness to rag-

1. Sutton, R. L.: Ragweed Dermatitis, J. A. M. A. **73**: 1433 (Nov. 8) 1919.

2. Bloch, Bruno: Rôle of Idiosyncrasy and Allergy in Dermatology, Arch. Dermat. & Syph. **19**: 184 (Feb.) 1929.

weed and to contact of the sensitized skin with parts of this plant.

We believe that it cannot be sufficiently emphasized that, in dermatitis of a papular, vesicular and erythematous nature, contact tests must be made. Just as scratch tests may bring to light urticarial hypersensitiveness, so the contact tests, read after twenty-four hours and longer, may lead to the discovery of the cause of the dermatitis. In other words, in order to perform a complete test, in urticarias the allergen should be brought through the skin, in eczematous dermatitis it should be brought into a more or less prolonged contact with the skin surface. The case reported here sufficiently illustrates this point.

2. The flaring up of the old site of contact test on the subsequent intradermal administration of allergen is an interesting and not unusual allergic phenomenon. Its exact mechanism is still a riddle, but the theory which enjoys the greatest number of adherents is that the new allergen which is administered plus the old allergen which is still present at the old site make a sum of allergen sufficient to cause a visible reaction. There are several other explanations that seem plausible; for instance, that the cells, unspecifically weakened by former reactions, are more readily prepared to react to any new harmful agent. A discussion of these points is to be found, for instance, in the article by Biberstein and Oschinsky,[3] and Sulzberger's [4] article on arsphenamine sensitization.

3. After a number of injections of allergen by the intradermal route, the patient's skin no longer gave a positive reaction to contact with ragweed allergen, and the dermatitis had improved. Whether a spontaneous desensitization of the skin had occurred or whether the intradermal injections had acted as actual agents of desensitization cannot now be decided. However, the fact seems worthy of note and we would recommend trials of desensitization by the intradermal route in allergic asthma and hay-fever, as well as in skin conditions. In this connection we would call attention to the fact that desensitizations by the scratch method have been reported by Pasteur Vallery-Radot and by Hagenau.[5] The following remark of Kammerer's is also of interest: "One must bear in mind in all methods of cutaneous desensitization that it is theoretically possible that a more effective desensitization may be achieved [by epidermal methods] than by subcutaneous ones, on account of a special and as yet unknown reactive power of the epidermis." In view of this possibility we would suggest that a comparison be made of the desensitizing effects of intradermal and of subcutaneous injections of allergen by systematic investigation of their effect in a large number of parallel cases.

When the intradermal injections are performed, in order to give the desired dose it is sometimes necessary to inject several areas at the same time, as it is not practicable to administer much more than from 0.1 to 0.2 cc. of fluid in any one intradermal site.

It may not be superfluous again to warn of the dangers of injections of allergen in hypersensitive subjects. Deaths have been reported. To avoid accidents it is necessary first to test out the allergens on a Pirquet scratch, and only such dilutions that do not give a reaction on the scratch may be injected, as has been repeatedly emphasized by Coca and others. Furthermore, the injections should be carried out only by an experienced hand, and all measures for combating untoward effects, such as epinephrine, lobeline, and a tourniquet, should be ready for use.

200 West Fifty-Ninth Street.

3. Biberstein, H., and Oschinsky, F.: Arch. f. Dermat. u. Syph. **142**: 353, 1923.
4. Sulzberger, M. B.: Hypersensitiveness to Arsphenamine in Guinea-Pigs, Arch. Dermat. & Syph. **20**: 669 (Nov.) 1929.
5. Quoted by Kammerer: Allergische Diathese und allergische Erkrankungen, Munich, J. F. Bergman, 1926, p. 103.

AUTOGENOUS VACCINES

THEIR PREPARATION AND USE *

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My purpose in this paper is to present the experience of several years gained in the preparation and use of autogenous vaccines. It would seem that nothing new could be added to what has already been said on preparation because most of the textbooks publish a more or less standardized method for vaccines which has been acceptable for a number of years. It is unfortunately true that vaccines are not the cure-alls that some persons expect them to be, but, on the other hand, they have a definite place and value. In a recent review made by Hektoen and Irons [1] the reports from all parts of the country would seem to give vaccines, both stock and autogenous, a very low rating and would indicate that this form of therapy is being used by only a small minority of the profession at large.

What is wrong? Is the vaccine as a principle right but unable to meet expectations or are the methods by which vaccines are made and used not bringing about the expected results because of their limitations? May I try to answer these questions in this paper?

A vaccine is a saline suspension of the killed bodies of bacteria with some of their products produced on or in culture mediums. That is a simple definition, but when it is analyzed one is confronted with many possibilities when the actual technic is worked out or modified. I am afraid that many vaccines are prepared with the thought of some kind of a clear or slightly clouded suspension and nothing else in view. The easiest part of a vaccine is its handling after the saline suspension is made.

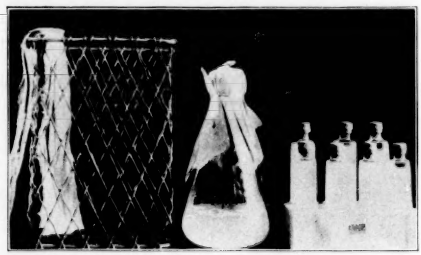
There is no space here for the discussion of the principles of vaccine reactions since much is based on theory. Let it be accepted that a certain amount of specificity exists on the part of the organisms in a vaccine to produce specific antibody in the body against those bacteria. In addition, let the principle be accepted that general immunity is raised by the grouping of bacteria in a vaccine, now spoken of as resistance. If resistance is thus spoken of in a general way and antibody formation in a more specific way one may look for certain results from vaccines. Thus, in some cases there is produced a specific reaction against a given infection, as in staphylococcic dermatitis (furunculosis), and a general resistance to group infection, as in the common colds.

* From the Laboratories of the Diagnostic Center, U. S. Veterans' Bureau.
* Read before the Section on Pathology and Physiology at the Eightieth Annual Session of the American Medical Association, Portland, Ore., July 12, 1929.

1. Hektoen, Ludvig, and Irons, E. E.: Vaccine Therapy: Result of a Questionnaire to American Physicians, J. A. M. A. **92**: 864 (March) 1929.

I have no comparison to make between autogenous and stock vaccines, since I believe that both have their sphere, but am confining my observations entirely to the autogenous group.

The prevailing attitude of the profession is in favor or disfavor of vaccine therapy in relation to the experience of the individual. There are many reasons in the explanation of results with vaccine. The proper preparation of a vaccine is of foremost importance. Many vaccines are undoubtedly being made from mass suspension of first cultures with whatever grows on the slant or in the bouillon, with no idea other than that of a clear, sterile solution. Many vaccines are prepared with great care and are never even given; they are lost in the mails or in the office; the patient does not return; the patient changes medical advisers, or treatments started in the hospital are not carried out afterward. In checking over a series of vaccines prepared in a general hospital laboratory I was surprised to find a number the dosage of which was never completed. This must be the experience all over the country and must be a factor in the disfavor in no way attributable to the value of the vaccine. Sometimes



Flask with covered stopper tied on. This is tied into a nonrusting test tube basket, which holds it under the water in the inactivating bath. Types of 5 cc. and 10 cc. ampules with easily inserted rubber stoppers.

the dosage of a vaccine is started too high, a marked reaction results and it is stopped. The vaccine is blamed. Some men still maintain that all vaccines should be given, as with typhoid, in two or three doses and then stopped. Obviously, this will not get any results since, with the exception of typhoid as a prophylaxis, no organism acts in this way.

Vaccines should be made, dosed and given so that they will bring about the maximum amount of reaction both locally and generally. In this way the results expected may be brought to their maximum under the present methods of preparation. The vaccine which produces only a small amount of local redness, or not even that, cannot be looked on for any decided results. On the other hand, although it may not be understood just what is taking place, the vaccine that will produce not only a good red, painful, local reaction but constitutional results, with headache, backache, and some fever for twenty-four hours, with prompt disappearance of these symptoms, is the vaccine that may be looked on as giving favorable end-results.

PREPARATION OF VACCINE

In the preparation of such a vaccine it is of first importance to have organisms which may be reasonably associated with the patient's condition. They may be difficult to find, especially in the focal cases, but in these cases all possible organisms can be included. It is the general opinion that single organism vaccines give the best results, but this is not my experience. In isolating a flora I do not despise the common staphylococcus just because it grows readily, but I do pay a great deal of attention to heavy predominating types of bacteria in different floras and to organisms not usually found in a given flora.

This experience in picking organisms from a mixed flora comes only with time. It is necessary to familiarize one's work with possibilities and especially to know characteristics of the mediums. In my own laboratory it is not uncommon to use two or three hundred blood agar plates a week in isolating floras from focal infection and in mass transplanting procedures. The experience from this has been invaluable and is difficult to impart concisely.

In order to obtain the proper organisms, the bacteriologist should take his own cultures. He should use a variety of mediums planned to bring out the greatest possibilities in a flora. The flora should then be carefully studied and isolated on first transplants, preferably on blood agar plates and not tubes. Plates should be planted in sufficient numbers to meet the requirements of dosage as estimated by predominance and importance on the original plate. An organism should not be transplanted any more than is necessary, but it does not seem to lose any of its potency by a few transplants. As a matter of fact, cultures that are allowed to grow for forty-eight hours on first or second transplants have even more "kick" than those of the earlier periods.

It is entirely unnecessary to count organisms. I have wasted many good hours trying to dose a vaccine accurately either by direct counting or by the nephelometer but fortunately found out early that this does not mean a thing. It does not make a particle of difference whether a vaccine has a hundred or a thousand million organisms in it so long as it produces reactions.

When I first started to make vaccines I tried to get very light emulsions; but now I pay no attention to the emulsion. I never centrifugate it to throw down the larger colonies but use them all without any attempt to break them up other than by ordinary shaking. I am after reactions. I found in attempting to get reactions that I could use 2 or 3 cc. of a vaccine without any results. I then gradually increased the suspension until I got a vaccine giving primary reactions in a 0.1 cc. dose. If these vaccines give too strong reactions, they can easily be diluted by a little salt solution. At the present time, from the transplanted plates I make very heavy suspensions and rely on building up small doses to the maximum reactions somewhere between 1 and 1.5 cc.

I have never had a fatal result. I have had several vaccines in which the reactions were severe, but when these vaccines were kept down to small doses or were diluted they were used successfully. In one case an intern gave 5 cc. of a particularly strong vaccine, by mistake, for 0.5 cc. The reaction was severe and caused the patient to stay in bed for several days. I have had several patients in bed for a day or two following a maximum dose, but I consider this almost certain evidence of final beneficial results. I have had one case of iritis, in a physician, dependent on a hemolytic streptococcic prostatitis, in which mild attacks of iritis could be produced by 0.1 cc. of the vaccine of this organism. After the 0.3 cc. dose on the same or on the following day, he had a prostatic message, plus an electrical treatment over the prostate; he had a general acute flare-up

with arthritis and myocarditis, confining him in bed for months. If this reaction followed the vaccine, which does not seem likely, it is the only one so far in the entire series. The isolation of the proper organism, the transplanting in sufficient numbers and the heavy suspension in salt solution, regardless of the count or character, are the most important points to be observed.

The rest of the technic—the transfer from culture to saline solution, proper inactivation, at 60 C. for one hour in a water bath with frequent agitation, control cultures, tricresol, 0.1 cc. of a 1 per cent solution to each cubic centimeter (a 1:1,000 solution), ampuling and final controls before releasing—is a mere matter of detail but is most important. The use of autogenous blood agar plates, based on the work of Heist, does not seem to offer any improvement. I have tried out a series against control routine plates with conflicting results. I have tried out the isolation, in individual suspensions, of all organisms from a flora, have then made intracutaneous allergic reactions and have used only those showing positive reactions, 50 per cent or more, in the vaccines. I think this offers possibilities, but the delay and extra technic are too great for a routine procedure. In certain cases when previous attempts at vaccine have failed, especially in those of bacterial asthma, the results would seem to warrant this procedure.

In cases of arthritis, Baer makes use of a vaccine prepared from the positive allergic reaction to strains of streptococci isolated from previous cases. He reports a definite increase in good results in this type of case. Elective localization, specific antibody and general resistance are concerned in the explanation of these as specific reactions, or resistance by a stock vaccine and protein therapy may be the answer.

The dosage for a given vaccine will vary within wide limits under the methods of preparation that I am using. It is wise to start with 0.05 to 0.1 cc. and work up increases of from 0.1 to 0.2 cc. until the maximum reaction for that vaccine is reached. It would seem best to give the doses every other day, allowing twenty-four hours for the reaction and twenty-four hours for recovery. The maximum in heavy vaccines will be reached at from 0.5 to 1.5 cc. When this maximum dose is determined, it should be repeated until from twelve to fifteen doses have been given. The dose should then be reduced just below the reaction point and given at longer intervals, five days or a week apart, for four or five doses. This makes a total of from eighteen to twenty doses over a period of from three to six weeks. The vaccine should be stopped at that point, and I believe that a follow-up series should be repeated in from three to four months, consisting of the 0.1 cc. dose up to the maximum every other day and stopped at that point.

METHOD OF STUDY

The work on which this paper is founded is based on two series of vaccine records. Group A includes 419 vaccines prepared prior to 1927, and group B 412 prepared during the past two years, a total of 831 for which I have available records. In group A the methods of preparation were quite varied, beginning with very simple preparations and including all possible modifications as to growth of cultures, selection of cultures, mass transplants of primary cultures, counting for dosage, variations in inactivation, addition of cresols and tricresols, and methods of ampuling. This may be considered the group on which a more or less standardized method was worked out for the second group. In group A, most vaccines were standardized on a final total suspension of 500,000,000 organisms per cubic centimeter, so that local and general reactions would be reduced to a minimum. In group B the suspensions were often many times this number and the predominant organisms were made the maximum constituents of the final suspension. In group B I have attempted to make vaccines that would give both local and general reactions, relying on variations in the dosage to control the individual vaccine rather than to standardize all vaccines by a routine method and give standardized doses. I am sure this has increased the efficiency of the vaccines prepared in group B.

In group B a great deal of attention has been directed toward the study of the original floras by colonies, with fishing and isolation of individual colonies and regulation of their dosage by the number of plate transplants. For example, when a hemolytic small colony of streptococcus predominated, as many as twenty blood agar plates are transplanted for growth, and the washed colonies of all plates used in the suspension, along with the other colonies present. When a colony of staphylococcus or *Bacillus coli* grows heavily it is rarely necessary to use more than two or three transplants. A flora isolated from the nose, pharynx, tonsil crypts, gingivae and sputum may take from thirty to forty plates, which is a maximum, to produce a good representative suspension.

In single organism vaccines, I always use from two to twenty plates, depending on the growth. I never use the original plates because of the possibilities of contamination and the difficulty of inactivation of possible spores. When colonies are adherent and fail to break up, I include them just the same, giving instructions to shake the ampules thoroughly at the time of using. I spent a good deal of time trying to break these colonies up but found that it does not make a bit of difference when they are included, as far as the size of these masses of bacteria is concerned. I am, of course, careful not to include any foreign material such as precipitate in the salt solution, bits of solid medium and strands of cotton from the swabs used to remove colonies from the plates. I find that colonies are best removed from the plates by swabs moistened in saline solution instead of floating the solution over the plate and transferring by pipets.

There are many such technical "tricks" which are gradually adopted with experience. For example, in inactivation I usually have a bulk of 75 cc. of finished suspension. This is made up in a previously measured saline solution in a 150 cc. flask stoppered with a rubber stopper, covered with a piece of muslin, as shown in the accompanying illustration. In order that the flask may be thoroughly submerged in the water bath, the stopper is tied on as old fashioned fruit jar tops were tied. Since the introduction of this method, I have never lost a vaccine in the bath. All parts of it are sterilized and there is no danger of subsequent contamination.

From all the vaccines that I myself have given I have never observed a single infection and have seen only two abscesses in which the vaccine was given by others. These were both skin staphylococci infections and not from the original vaccine. This is a source of some satisfaction and relieves one's mind from the fear of a contaminator. It is the result of constant attention to detail and careful control checking and rechecking. When anaerobes are included in a vaccine, one must not forget to control by anaerobic cultures. Most vaccines are easily inactivated in the

water bath at 60 C. for one hour. Occasionally an organism resists two inactivations of this sort. If it is especially desirable to use such an organism, it may be killed by autoclaving at 20 pounds pressure for fifteen minutes. As a rule, the autoclave is obviously not to be used.

RESULTS

In an analysis (table 1) of the source of cases in the two groups, carried out with entirely different men—group A in connection with a staff hospital and group B with sixty-three physicians in Washington—a close relation is seen to exist. The attitude of different men in selecting cases influences the results to some extent, since individual enthusiasm for or against a vaccine plays a part in the final outcome. In the out-and-out chronic infections the majority of cases are those of focal infection from the mouth and respiratory tract with secondary manifestations. From both these groups, good results are to be expected. When a vaccine is prepared in a hit or miss fashion from some source in the hope that it may bring about a favorable result, the expectations are rarely realized.

TABLE 1.—*Sources and Types of Cases from Which Vaccines Were Prepared*

Source	Group A* Cases	Group A* Per Cent	Group B† Cases	Group B† Per Cent
1. Furunculosis	90	22.61	18	4.60
Osteomyelitis (acute)	1	0.25	..	....
Typhoid abscess	1	0.25	..	....
Sacro-iliac disease	..	....	1	0.26
Abscess	..	....	3	0.80
2. Skin	17	4.27	..	....
Acne	21	5.28	5	1.30
Eczema	4	1.00	2	0.51
Erysipelas (acute)	2	0.50	..	....
Erysipelas (chronic recurrent)	2	0.50	..	....
Multiple cysts	1	0.25	..	....
Ulcer of the leg	1	0.25	..	....
Psoriasis	1	0.25	1	0.26
Lupus	..	....	1	0.26
Toxic condition	..	....	2	0.51
3. Eye	5	1.26	15	3.90
Iritis	..	....	3	0.80
4. Ear:				
Otitis	7	1.76	17	4.40
5. Mastoid	2	0.50	4	1.00
6. Nose	46	11.56	..	....
Rhinitis (acute)	..	....	1	0.26
Rhinitis (chronic)	..	....	11	2.90
Recurrent "colds"	..	....	53	13.70
Ozena	..	....	1	0.26
Antrum	..	....	9	2.30
Ethmoid	..	....	1	0.26
7. Pharynx	8	2.01	..	....
8. Pharynx and nose	6	1.51	18	4.60
9. Tonsils	28	7.04	8	2.08
10. Gingiva	2	0.50	9	2.30
11. Teeth	24	6.03	39	10.10
Curettage of mandible	2	0.50	..	....
Maxillary polyp	1	0.25	..	....
Maxillary cyst	1	0.25	..	....
12. Sputum	12	3.02	32	8.31
Bronchitis (acute)	1	0.25	1	0.26
Bronchitis (chronic)	..	....	1	0.26
Asthma	2	0.50	6	1.50
13. Arthritis	1	0.25	14	3.60
Dental focal	..	....	14	3.60
Focal	..	....	2	0.51
Blood	..	....	6	1.50
Lymph gland	1	0.25	2	0.51
14. Bladder	25	6.28	1	0.26
15. Ureters	7	1.76	..	....
16. Bladder and ureters	8	2.01	..	....
17. Vagina	2	0.50	2	0.51
Pruritus	..	....	2	0.51
Urethral sinus	1	0.25	..	....
18. Urethra (male)	1	0.25	..	....
19. Prostate	45	11.31	30	7.80
20. Feces	3	0.75	5	1.30
21. Blood culture	10	2.52	..	....
Acute sepsis	..	....	1	0.26
22. Focal infection	..	....	4	1.00
Myocarditis, toxic	..	....	15	3.90
Thyroid	..	....	1	0.26
23. Hodgkin's disease	1	0.25	1	0.26
24. Encephalitis	..	....	19	4.90
25. Nephritis	..	....	1	0.26
26. Prophylactic influenza	..	....	3	0.80
Total	398	100.0	385	99.68

* Cases studied prior to January, 1927.
† Cases studied since January, 1927.

In an analysis (table 2) of the different organisms, forty-seven distinct types were used in group A. The staphylococcus in some form (297) leads the list, with the streptococcus second (248). The list includes *B. coli, typhosus* and *catarrhalis,* anaerobic streptococcus, pneumococcus, gonococcus, *B. acnes, diphtheriae, hoffmannii* and *pyocyaneus,* yeast, mycelia and a number of less common types. The yeast was a predominant type and was included in one sputum vaccine in a case of chronic pulmonary disease. The single organism vaccines in group A were made in 210 cases, while 188 cases had multiple organisms up to five. In group B the opposite is true; because of the difference in types of cases, the multiple organism vaccines are in a much greater proportion.

In group B, the entire analysis is not finished but the common organisms are about the same with a more careful typing of individual strains. It has been found that unless an isolated organism is completely worked out, which is technically impossible in all cases, the best one can do is place it under a group reading based on its cultural character on blood agar plates.

An analysis was made of the number of times each organism appeared in each type of case and the number of times an organism appeared with each other organism. Both of these charts are interesting but cannot be included in this report.

In a study of the dosage used in group A, every possibility appears, from 0.5 cc. given every six hours to 0.1 cc. given every fifth day. From this experience, it has been found that the dosage stated previously is the one that offers the best possibilities for success.

In a study of the periods of inactivation, all temperatures from 56 to 65 C. in the water bath have been tried; 60 C. was found to control the majority of vaccines, while many heated at 58 C. had to be reinactivated at 60 C.

In a questionnaire (table 3) sent out to 398 vaccine patients of group A to get their conception of improvement, 49 per cent answered. Ninety-one per cent had received a complete dosage; 97 per cent of these had no undue local or general reaction, 65 per cent showed an immediate improvement, from well marked improvement to complete cure, according to their own conception, while the same percentage remained well, some as long as from five to seven years; 27 per cent showed no immediate improvement, and this percentage rose to 30 for no eventual recovery.

The cases in group A showing improvement and recovery included those of furunculosis and abscesses, local infections, recurrent colds, focal infections of the teeth and tonsils, chronic pulmonary infections, gonorrheal arthritis, chronic otitis media, cystitis with ureteral involvement, prostatitis, eczema and dermatitis, recurrent erysipelas and osteomyelitis. In one of the outstanding instances, a boy had a vesicopapular dermatitis with crusts and desquamation involving the entire body. This had been progressively worse for two years. A gram-negative, short anaerobic bacillus was isolated and included in a vaccine with skin staphylococci. This vaccine was given in ascending doses up to 1 cc. Nothing else was used in the way of medication. The patient was put on a low general diet with restrictions of protein. Improvement began almost immediately and his entire skin gradually cleared up until it was perfectly smooth with, however, a brawny pigmentation. The patient remained well for two years.

The cases showing no improvement when it might be expected were acne and various types of skin lesions, chronic erysipelas, gonorrheal arthritis, cystitis with ureteritis, foci of infection in the teeth and tonsils, atrophic rhinitis (ozena), chronic conjunctivitis and exophthalmic goiter with dermatitis.

The cases showing no improvement included a number in which improvement would not be expected, difficult chronic cases and those in which no other treatment was given. These were typhoid abscess of the ribs, chronic conditions of the nose and throat, chronic pulmonary disease, Hodgkin's disease, severe cystitis, chronic cervicitis and vaginitis.

In group B there have been some remarkable results and some complete failures. A careful analysis of the failures will constitute a separate report. A vaccine may have very definite results when intelligently used. In conjunction with other forms of treatment, it may be the factor placing the case on the improved side when otherwise a failure would be recorded. It is especially valuable in the group of focal infection, as shown by Rosenow. When the focus has been removed, the ultimate improvement is increased with the use of vaccine by at least 10 per cent of cases. In my own cases in which all foci have been cleared up and vaccine prepared, the results have been even better than 10 per cent as to specific reactions and especially in what may be termed general resistance.

In a summary of the general situation as to autogenous vaccine, it would seem that this form of therapy is being used less and less. At the same time, results from improvement to complete recovery in certain types of cases can be obtained, conservatively, in 65 per cent of cases. Occasionally, brilliant results follow. At the same time, in certain cases in which a vaccine would seem to be most indicated, the results are flat failures. Some of the types of cases in which the best results have been obtained are furunculosis; chronic infections from a single organism; focal infections, especially of the teeth, tonsils, nasal sinuses and prostate, with secondary manifestations such as arthritis, myocarditis, anemia, general pains and aches; headache; chronic pulmonary conditions other than tuberculosis; cystitis and ureteritis; chronic osteomyelitis; chronic otitis media;

TABLE 2.—*Types of Organisms Isolated, Group A*

	Total
Cases recorded	398
Organisms isolated	738
Single organism	210
Multiple organisms up to five	188
Staphylococcus in some form	297
Streptococcus in some form	248

a few acute infections such as carbuncles; abscesses; wound infection; chronic bacteremia; preoperative resistance; prophylaxis, and recurrent colds.

It is a mistake to throw all the weight of therapy in a given case on a vaccine. All other measures—chemotherapy, roentgen treatment, rest, diet, hygiene and removal of active foci of infection—should be carried out in conjunction with the vaccines.

Vaccines should be made from representative floras and the suspension should be heavy enough to give good local and general reactions, not the so-called accurately dosed solution of so many millions per cubic centimeter. They should be made on the basis of their reactions and the results expected. They should be given in doses sufficient to bring about these reactions, preferably from a small start, being built up gradually until the maximum is reached. By reactions I do not mean that all patients should be sent to bed, but the site of inoculation should be red and tender and the patient should have some headache, backache, a little fever and generally feel bad. There will often be an exacerbation of the patient's illness. This must be followed by prompt improvement, and the next dose should not be given until recovery sets in. From the preparation of such a vaccine and its intelligent use are to be found the cases of improvement.

I trust that the questions propounded early in this paper have been answered.

TABLE 3.—*Result of Questionnaire Sent to Patients of Group A*

	Total Number	Per Cent
Number sent	398	100
Returned answer	197	49
Receiving dosage	190	96
Not receiving dosage	7	4
Receiving complete dosage	174	91
Not receiving complete dosage	16	9
No local or general reaction	170	97
General or local reaction	4	3
Immediate improvement	124	65
No immediate improvement	53	27
No record	13	8
Eventual improvement	124	65
No eventual improvement	58	30

CONCLUSIONS

From the results of a recent questionnaire, vaccine therapy is apparently being used only by a small percentage of the profession.

Good results from vaccines, as shown by 65 per cent of cases in group A of the series, may be obtained by the ordinary methods of preparation.

Results are improved and increased when vaccines are made from carefully selected floras and the doses fixed according to the predominance of organisms, irrespective of the number in the final suspension.

It is not necessary to count the bacteria by any method in a vaccine preparation.

The dosage should be given and timed according to the local and general reactions produced. As a rule, one may start with 0.1 cc., increase the amount every other day from 0.1 to 0.2 cc. until the maximum, 1 to 1.5 cc., is given. The dose should then be reduced just short of reaction and continued at five day intervals. From fifteen to twenty doses should be given over a period of from three to six weeks. A follow-up series should be repeated in from two to six months.

Autogenous vaccines are not cure-alls but have a definite field of usefulness. If they are reserved for the selected cases, in which they may be expected to help, they will show an improvement in well over half of the cases, some brilliant complete cures and some flat failures.

ABSTRACT OF DISCUSSION

DR. F. W. HARTMAN, Detroit: It seems to me that vaccine therapy has been discredited largely by the use of stock vaccine and the promiscuous advertising that has been indulged in by some commercial houses. Certainly, in the well regulated clinics or hospitals where autogenous vaccines are used they are becoming more and more popular on the basis of actual results obtained. I shall take up more specifically some of the points that Dr. Keilty made; in the first place, regarding the preparation of vaccine. We prefer to standardize, to some extent, the suspension used. We do that by keeping turbidity standards made up from actually counted preparations and by comparing the autogenous vaccine with the standards. As a matter of sterilization, we have done away with heat entirely and simply add to the prepared suspension, the salt solution suspension,

0.5 per cent of tricresol. This is allowed to act for three days. Then the check cultures are made. Two cultures are always made after twenty-four and forty-eight hours. Regarding the reaction, I think there is a great deal of room for difference of opinion. In our group, I am sure that some patients have been given too much vaccine, in too large doses, and we have pushed too hard to get the reaction Dr. Keilty speaks of. That is particularly true in the group of chronic bacteremias or septicemias that show a low grade streptococcus and diphtheroid bacillus. This group of cases has yielded good results when the dosage has been cautious and gradually increased. But in a few instances in which the dosage has been pushed too hard in an attempt to get reactions, the results have not been so good. The suggestion has been made, especially in the group of cases of arthritis, that we should control our vaccine therapy by a study of the complement content of the blood and complement fixation against the organism used in the vaccine. We have tried this technic but we were not satisfied with it until we came to modify it, using the Kolmer modification. The types of vaccines used most in our group are perhaps the organism obtained from the gallbladder or rather from duodenal drainage. Dr. F. R. Miller has shown that, in a large group of urticarias and in some cases of asthma, the gallbladder shows a flora to which the patient is sensitive when skin tests are made. In this group, vaccine therapy has been quite helpful. In the group of low grade bacteremias or septicemias, I rather question the use of vaccines.

DR. ARTHUR H. SANFORD, Rochester, Minn.: It is certainly a far cry from Jenner's classic work to the present idea of using anybody's mixture of anything as a prophylaxis for everybody's common cold. The use of bacterial vaccines in our hands reached its peak several years ago. I am inclined to think that the popularity is waning to a certain extent, probably because of the fact, as Dr. Keilty mentions, that the patients do not always receive full dosage and the results are not properly checked. However, there are certain cases that I feel receive benefit. I doubt whether we can statistically prove that bacterial vaccines have been of value in a large series of cases. But I feel that certain types of cases can be benefited by vaccine, particularly the group of furunculosis that Dr. Keilty mentions. I do not quite agree with him in regard to acne. I feel sure that I have seen cases in which there was recovery after nothing but bacterial vaccine treatment for this skin condition. Occasionally, an anaerobic organism described by Gilchrist, if introduced into the vaccine, proves of considerable value in this type of case. One type of case in which I have seen rather a remarkable response to vaccine treatment is chronic recurring parotitis due to streptococci. When these are isolated from the parotid duct and a vaccine is prepared, these cases seem to respond quite well to this form of treatment. There is another large group made up of patients with eye conditions. The vaccines are made from foci of infection. The ophthalmologists seem to want vaccines for these conditions, and their patients do improve. It is also true that they improve if other forms of therapy are used, nonspecific protein therapy, milk injections or thyoid bacterin injections. I think Dr. Keilty has summed up the general field of vaccine therapy very well.

DR. E. R. MUGRAGE, Denver: In Colorado we are called on to treat considerable numbers of cases of respiratory infections which may or may not be tuberculous in character, and the diagnosis of which is often difficult to make. However, certain of the men have been in the habit of using autogenous vaccines in these cases, and we have found, contrary to what Dr. Keilty reported, that we obtained better results if we used weak suspensions in small doses, at rather wide intervals. In other words, we keep away from any sort of local or general reaction. We find it is best in these cases to check up by chest examinations. We have also found that, if it is at all possible to isolate *Streptococcus viridans*, we are much more likely to have favorable results with the use of such a vaccine in this type of case.

DR. CLARENCE H. EARLE, Des Plaines, Ill.: The question of furunculosis is an important one to the general practitioner. I should like to know how often Dr. Keilty gives these vaccines and how long it usually takes to cure that condition.

DR. J. A. MCINTOSH, Memphis, Tenn.: A new phase in vaccine therapy is the use of bacteriophage. Dr. Rice of Indianapolis has reported fifty cases of suppurative diseases treated with bacteriophage. His results were exceptionally good. Introducing lysed organisms and the lysing agent appears to give quicker results in our hands than the introduction of the killed organism alone. Bacteriophage may be prepared by adding a small amount of filtered sewage to *Staphylococcus aureus* culture in broth, incubated and filtered through a fine meshed filter. Other organisms, such as *Bacillus typhosus*, are lysable. The "phage" may be administered as a moist dressing spread over the area where there are furuncles. It is surprising to note how quickly the furuncles will dry up. The pain is relieved amazingly quickly. The "phage" may also be injected into the tissues or given intravenously or intraspinally. We believe that staphylococcus bacteriophage is more effective than staphylococcus vaccine because the organisms are dissolved in the broth.

DR. ROBERT A. KEILTY, Washington, D. C.: The terms "vaccine and serum" have been used loosely. I think every one recognizes a vaccine as a saline suspension of killed organisms. I have, therefore, used the name vaccine as every one else does. I think bacterin is a better term. Dr. Hartman's use of organisms from duodenal drainage is a new thought. I usually discard the bacterial flora of duodenal drainage because of its relation to the stomach and mouth organisms. I have not given it much value in the past, but I will in the future. As a whole, the use of vaccines in acne, in my hands, has been disappointing. The ophthalmologists are demanding vaccines in the focal cases. In addition to the case of iritis dependent on a prostatic streptococcus mentioned in the paper, another case of recurrent iritis might be cited briefly. This case is of twelve years' duration and has had every possible study. Recently the patient has had a full course of vaccine made from a streptococcus constantly present in the feces. An attack of iritis followed even this. In the eye cases, especially iritis, one should be exceedingly careful. The question of small doses in cases of chronic pulmonary disease is an important one, especially in asthmatic persons. Very small doses, sometimes the smallest dose one can give, will result in a sharp pulmonary reaction. One must regulate this entirely as an individual reaction with the patient. The question Dr. Earle asked is a good one. In furunculosis, undoubtedly, we get the best results, and it is usually the single organism vaccine that is used, a staphylococcus of some type. I usually make a heavy suspension, starting with 0.1 cc. dose given every other day, until the maximum reaction is obtained. I think that 90 per cent of these cases will clear up. If there is a recurrence of furuncles, one should immediately repeat the vaccine. I am ever mindful of the paper given by Dr. Theobald Smith some years ago in Philadelphia, which is still exerting its influence of caution.

The Hereditary Tendency in Medicine.—There was a time, not many years ago, when doctors became doctors through heredity. Not infrequently the eldest son of a physician followed in the footsteps of his father and the latter had had the same experience with his father. This hereditary tendency in medicine meant several things. The doctor came from a family of doctors and this family had a certain social standing, in itself not a bad thing when mixed with other attainments, and also probably a fair amount of money which then meant leisure for study and reading of a kind that created, as a general rule, rather fine impulses. Such a background not only insured a practice but a pleasant type of gentleman to do it. He had a fair amount of specific medical learning (there wasn't any too much to have), and, not infrequently, what he lacked in analytical methods and detailed information he in large part made up for by knowing the sick organism as a whole, its ancestral propensities for diseases and whether it could or could not weather certain physical and mental disturbances. He had certain characteristics of judgment and a certain kindliness of heart which headed up in a desire to be of service to sick people. These were very real attributes and many did not arise as a result of years of dogmatic, scientific training. Probably if we could superimpose on this kind of a man a certain amount of the modern physician we should have a combination of ideal characteristics.—*South. M. J.*, December, 1929.

RESULTS OF ROENTGEN THERAPY IN CARCINOMA OF THE BREAST *

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We have been using roentgen therapy in carcinoma of the breast since 1901, but, as this report is based on private cases, our records extend only from June, 1902, to June, 1926, which gives us 939 cases which have passed at least a three year period since the beginning of treatment. We have used only our private records because the cases in the hospital records have not been sufficiently followed.

Every medical observer has recognized the disappearance of both primary and recurrent malignant disease located in various parts of the body as a result of the action of the x-rays. All observers have also seen primary, recurrent and metastatic disease from carcinoma of the breast disappear. Gradually, the results from larger clinics are being reduced to statistics since beneficial results in individual cases are too common to excite interest.

In 1925, Pfahler and Widmann [1] presented before the American Roentgen Ray Society a statistical study of three and five year results of radiation therapy in 590 cases (1900 to 1922). We are now bringing this review up to June, 1929, which will cover the cases referred previously to June, 1926. In our previous review as well as in this review we counted as dead all patients that could not be traced. Since the 1925 report, we have been able to trace a number of patients that were considered dead. This has given considerable improvement in our percentage values as compared with the previous report. When patients could not be traced, we have counted them as living only to the date of our last record.

The end-results are affected not only by the type of cancer but by the age of the patient, the stage and rapidity of the growth, the extent of the metastasis, the regions invaded, the physical resistance of the patient, the duration of the symptoms before operation and irradiation, and the duration of the recurrence.

We have not found the grading of tumor tissue of the degree of malignancy, as determined by a microscopic study of the sections from the carcinoma, to be of value as to the prognosis, as is shown in table 1.

TABLE 1.—*Results of a Restudy of Microscopic Slides on File at the Lankenau Hospital and at the Graduate Hospital in Philadelphia* *

	Grade I	Grade II	Grade III
Preoperative and postoperative	0	18 patients 55.5% alive 3 yrs. 38.8% alive 5 yrs.	0
Postoperative....	4 patients 50% alive 3 yrs. 25% alive 5 yrs.	38 patients 20 % alive 3 yrs. 36.8% alive 5 yrs.	5 patients 60% alive 3 yrs. 40% alive 5 yrs.
Recurrent.....	5 patients 20% alive 3 yrs. 0% alive 5 yrs.	35 patients 34.2% alive 3 yrs. 25.7% alive 5 yrs.	5 patients 40% alive 3 yrs. 25% alive 5 yrs.

* Sixty-six cases were studied by Dr. Reimann and forty-four cases studied by Dr. Case, and credited according to the estimated malignancy from a pathologic standpoint.

* Read before the Section on Radiology at the Eightieth Annual Session of the American Medical Association, Portland, Ore., July 10, 1929.

1. Pfahler, G. E., and Widmann, B. P.: Statistical Study of Radiation Therapy in Eight Hundred and One Cases of Carcinoma of the Breast, Am. J. Roentgenol. **14**: 550-562 (Dec.) 1925.

The microscopic slides of cancer of the breast which we have treated and which were on file at the Lankenau Hospital were reviewed and graded as to degrees of malignancy by Dr. Stanley P. Reimann, and those which were on file at the Graduate Hospital (formerly the Medico-Chirurgical and Polyclinic Hospitals) were reviewed by Dr. Eugene Case. In a paper about to be published, Reimann [2] says, "In the grading, small cell size, much mitosis and little degeneration were taken as unfavorable. In the architecture, streaks, small nests, large nests, sheets, mucoid and adeno types were taken as of decreasing order of malignancy." In his paper Reimann has reviewed 100 cases in the Lankenau Hospital records in which the end-results could be traced. He classified his cases according to three grades, on the basis of the evidence of malignancy, and made the following predictions:

Patients in grade I should be dead in twelve months.
Patients in grade II should be dead in twenty-four months.
Patients in grade III should be well.
Total correct 50 times, incorrect 50 times.

TABLE 2.—*Symptoms Calling Patient's Attention to Carcinoma*

Lump, 50% of cases
Pain, 20% of cases
Injury, 14% of cases
Complaint of following initial symptoms in remaining 10 per cent:

Stinging sensations	Tender axilla-neck
Eczema of nipple	Dimpled skin
Bleeding nipple	Sinus in breast
Discharge from nipple	Pigmented mole
Ulceration of nipple	Pain right under abdomen
Soreness in nipple	Rheumatism in back, etc.
Retraction of nipple	Swollen arm
Increase in size of breast	Cough
Lump in axilla	Dyspnea
Lump in neck	Cachexia
Abscessed breast	Anemia

We have been able to get a restudy of the microscopic slides and this classification or grading in 110 of our cases. The results are shown in table 1. This number is too small to permit conclusions, but only in the recurrent cases do these predictions seem to have some relative value.

Of 939 patients, twelve, or 1.3 per cent, were males, and 927, or 98.7 per cent, were females; 709, or 75 per cent, were married and 230, or 25 per cent, were single; the right breast was involved in 438 cases, or 46 per cent; the left in 448, or 48 per cent, and both breasts in fifty-three, or 6 per cent, of the cases.

It will be noted in table 2 that the patient's attention was attracted to the breast by a lump in 56 per cent of the cases, by pain in 20 per cent and by injury in 14 per cent, making a total of 90 per cent of all cases in which one or all of these three symptoms were the first signal to the patient.

Our youngest patient was 16 and the oldest was 85 years of age; 64.4 per cent of all patients were between 30 and 55 years. The average duration of symptoms before the patients applied for any kind of treatment was nineteen months, which indicates the delay on the part of the patients and gives a general idea of the advanced stages of the disease, or the type of patients that were referred to us. In spite of the unfavorable class, the results show a positive value of roentgen treatment.

Table 3 shows in the postoperative and recurrent group (646 cases) that the average time intervening between operation and roentgen treatment was fifteen

2. Reimann, S. P.: The Issues at Stake in the Grading of Tumors, Arch. Path. **8**: 803 (Nov.) 1929.

months. We believe that patients should be referred for postoperative roentgen treatment as soon after the operation as is practical, which we believe is usually within two weeks, and certainly within four weeks. It is our general experience that, when patients are referred after four weeks, it is because there is likely evidence of unremoved metastasis, because the disease was far advanced when operation was performed, or because the disease was so advanced that there has been difficulty in the healing of the wound. In this connection we may state that we have not found that postoperative roentgen treatment has interfered with the healing of a wound and an unhealed wound is not a contraindication to roentgen treatment.

PREOPERATIVE AND POSTOPERATIVE TREATMENT

We have been recommending preoperative roentgen treatment combined with postoperative treatment since 1916. Preoperative treatment is based on the theory that such treatment devitalizes the cancer cells and therefore makes them less liable to grow if reimplantation or transference occurs during the operation. The devitalization of cancer cells is a recognized effect of irradiation both clinically and experimentally. Murphy and Nakahara [3] at the Rockefeller Institute, and Russ and Scott [4] at the Cancer Research Laboratories of the Middlesex Hospital, have shown that preliminary irradiation of the tissues prevents the growth of cancer implants in animals.

TABLE 3.—*Average Time Intervening Between Operation and Roentgen Treatment (Fifteen Months) in the Postoperative and Recurrent Cases*

Treatment Started	Number of Cases	Treatment Started	Number of Cases
2 weeks	74	10 months	18
3 weeks	38	11 months	5
4 weeks	40	12 months	40
5 weeks	17	1½ years	45
6 weeks	26	2 years	22
7 weeks	18	3 years	20
8 weeks	58	4 years	23
3 months	26	5 years	18
4 months	24	6 years	7
5 months	22	7 years	8
6 months	37	8 years	8
7 months	10	9 years	6
8 months	29	10 years	10
9 months	16		
Total			646

We have had the privilege of treating eighty-three cases before operation. Of these eighty-three patients from 19 to 22 per cent (A-I) were without palpable lymph nodes, and 66 per cent of these were symptom free after five years; from 36 to 44 per cent (B-II) had palpable lymph nodes and 46 per cent of these were symptom free after five years, while from 28 to 16 per cent (C-D-IV) were in a totally inoperable condition but were rendered operable, and at the end of five years from 4 to 16 per cent were alive. These figures in themselves would seem to show no advantage in preoperative irradiation; but, when the advanced stage of the disease is taken into consideration, in the individual cases, we are convinced of its value. In the operable case, we plan to give preliminary treatment during two weeks and then have the operation about three days after the last roentgen treatment. For this treatment we use suberythema doses (from 80 to 90 per cent). In the inoperable case we aim to bring about a certain fibrosis and encapsulation which requires from two to three months. Operation is indicated after this time, when the remaining palpable disease can be entirely removed, and usually only a mastectomy is necessary.

3. Murphy, Hussey, Nakahara and Sturm: Effect of the Cellular Reaction Induced by X-Rays on Cancer Grafts, J. Exper. Med. **33**: 299 (March) 1921.

4. Russ, S., and Scott, G. M.: The Growth of Tumor Tissues Exposed to X-Rays and Radium, Brit. J. Radiol. **32**: 289 (Aug.) 1927.

POSTOPERATIVE ROENTGEN TREATMENT

Postoperative roentgen treatment is surely our greatest field of usefulness. It is our duty to combine all means which are available to combat the cancer. This includes, in addition to the operation and irradiation, all measures that will improve the general health and increase the resistance of the patient.

TABLE 4.—*Average Time Duration from Operation to Recurrence (One Year and Eight Months)* *

Recurrence Within	Cases	Recurrence Within	Cases
1 week	4	12 months	40
2 weeks	10	1½ years	29
3 weeks	8	2 years	38
4 weeks	33	3 years	19
5 weeks	2	4 years	20
6 weeks	5	5 years	9
7 weeks	1	6 years	7
8 weeks	20	7 years	6
3 months	21	8 years	6
4 months	29	9 years	2
5 months	15	10 years	3
6 months	26	11 years	1
7 months	12	12 years	1
8 months	10	13 years	1
9 months	11	15 years	2
10 months	10	18 years	1
11 months	2		

* It will be noticed that the most likely periods for recurrences are at four weeks, and between two months and six months, and then between twelve months and two years, indicating the importance of prompt postoperative treatment. It seems practical to begin postoperative treatment about two weeks after operation. We have not found delay in the healing of the wound in any case, as a result of postoperative roentgen treatment.

The end-results of surgical treatment alone show beyond a doubt that it is impossible to be sure of having removed all cancer cells. If any cancer cell remains, the congestion which follows will favor its growth. Every one who has taken sufficient interest to observe has seen recurrent cancer disappear. It is self-evident, therefore, that, if a cancer can be treated at its very beginning and before a definite blood supply for it has been established and before it has become extensive, it will be more easily destroyed. No one waits for a fire to burst into a large flame before trying to put it out. The same common sense should apply in the treatment of cancer.

TABLE 5.—*Classification of Types and Extent of Involvement in 939 Cases of Cancer of the Breast (Private)*

	Cases	Per Cent
a. Preoperative and postoperative cases	83	9
b. Postoperative	242	25
c. Recurrent metastasis; involvement of glands and chest	404	43
d. Primary inoperable cases	158	17
e. Primary operable	52	6
Total	939	100

We advise postoperative irradiation as soon as the patient can be moved, which is usually in from ten days to two weeks after the operation. If the patient must travel back and forth from home or a hospital, we usually treat the patient three times a week. The low voltage rays are used over the mammary region so as to avoid injury to the heart and lungs. The high voltage rays are used over the axilla, the coracoid region, and the supraclavicular region. The axillary and supraclavicular treatment is directed toward the upper mediastinum and infraclavicular region, while

V 9
193

in the coracoid the rays are directed backward and outward. Each of these areas is usually given a 50 per cent dose at each period, so timed as not to exceed normal tissue tolerance (saturation). There are usually about twelve treatments given in the first series, and this is repeated after an interval of from four to six weeks. Then the patient is kept under observation so far as is possible for at least five years.

We have had 242 cases in which postoperative roentgen treatment was given. This is only 25 per cent of our total group. We have had almost twice as many referred for recurrences. Of the 242 post-

TABLE 6.—*Classification of Types and Extent of Involvement in 939 Private Patients with Cancer of the Breast* *

Group			No. of Cases	Per Cent
		a. Both Preoperative and Postoperative Treatment		
		Before operation: glands	After operation: glands	
A	I	Not involved	Not involved	19	22
B	II	Involved	Not involved	38	44
C	IV	Not involved	Involved (not removable)	19	22
D	IV	Involved	Involved (not removable)	9	12
		Total		83 = 9% of 939 cases	
		b. Postoperative Treatment			
E	II	No		99	41
F	IV	Yes		70	29
G	I	No		51	21
H	IV	Yes		22	9
		Total		242 = 25% of 939 cases	
		c. Recurrent Cases			
I	III	Local recurrence		61	15
J	IV	Local recurrence in glands, axilla and supraclavicular regions		62	15
K	IV	Local recurrence metastasis, mediastinum—lungs		29	7
L	IV	Local recurrence in axilla and supraclavicular and mediastinal regions		217	54
M	IV	Local lesion and metastasis to spine and other bones		11	3
N	IV	Metastasis—mediastinum, lungs and bones		24	6
		Total		404 = 43% of 939 cases	
		d. Primary Inoperable Cases			
O	IV	Fixation to skin or glands, with axillary, supraclavicular and mediastinal distribution		108	69
P	IV	Fixation to skin or glands, with axillary and supraclavicular involvement plus bone metastasis		25	16
Q	IV	Made operable without chest metastasis		17	10
R	IV	Made operable with chest (palliative)		5	3
S	IV	Removed by electrocoagulation		3	2
		Total		158 = 17% of 939 cases	
		e. Primary Inoperable Cases			
V	I	Primary operable		39	75
T	I	Primary operable, questionable malignant		13	25
		Total		52 = 6% of 939 cases	

* The groups under each subdivision are classified after the fashion of the generally accepted surgical tables. The letters and numbers as used in subsequent tables refer to the classification given in table 6: group I, early operable, no glands involved; group II, late operable, with glands involved; group III, local recurrence—operable; group IV, inoperable—primary and secondary.

operative patients, fifty-one (G-I) were in an early operable condition and 96 per cent of these were symptom free at the end of three years, and 89 per cent after five years; ninety-nine patients were in a late operable stage, with involvement of glands; 63 per cent were symptom free after three years and 47 per cent after five years. These results are so much superior to those obtained from surgery alone that there should be no delay in giving postoperative treatment in all cases in which operation is done for carcinoma of the breast.

We have reviewed fourteen statistical reports in which there were definite statements as to the results obtained by operation without irradiation and operation combined with irradiation.

The general average of the results as taken from these records shows that in carcinoma of the breast, when no glands are palpable, surgery alone will give five year cures in 77 per cent and, when operation is combined with irradiation, 74 per cent are well. Our own records in this group show 89 per cent. It is to be hoped that this group of early cases will increase, but at present it involves only about 25 to 30 per cent of the cases as they come to operation, while 70 or 75 per cent of the operable cases show palpable lymph nodes and must be classed as late operable. It is this great group, involving from 70 to 75 per cent of the cases that come to operation, in which postoperative irradiation is very urgent. In this late operable group, with involvement of glands, the general average from the statistics shows only 20 per cent, while when operation is followed by irradiation, as recorded in literature, 35 per cent show five year recoveries. In this group our own records show 47 per cent free from known carcinoma after five years. It is our opinion that operation combined with irradiation will practically double the results as compared with operation alone.

RECURRENT CARCINOMA OF THE BREAST

It is generally recognized that irradiation is the best known method of treating recurrent carcinoma. It seems strange, therefore, that the profession has not more widely recognized the value of postoperative irradiation, for surely if the rays are expected to cure the macroscopic cancer they should be more effectual in the microscopic stage (postoperative). Recurrent carcinoma of the breast will give results which vary with the stage of the disease. We have divided our 404 recurrent cases into six groups in which the five year recoveries vary from none to 45 per cent, but with a general average of 18 per cent, which surely makes the treatment of recurrences worth while.

PRIMARY INOPERABLE CARCINOMA

The results to be expected from radiation therapy in inoperable carcinoma will vary with the stage of the disease, the extent of distribution, and the degree of malignancy. We have divided our inoperable cases (158) as follows: O, those with fixation to the chest or skin, with axillary, supraclavicular and mediastinal involvement (108); P, those in which there was also bone involvement (twenty-five); Q, those made operable without chest metastasis (seventeen); R, those made operable (palliative) with chest metastasis (five), and S, those in which the growth was removed by electrocoagulation (three). The results have varied from zero to 41 per cent, giving in all this group combined of 156 patients who were referred five or more years ago an average of 26 per cent living five or more years after beginning treatment. The average of duration of life, therefore, in this group from the time symptoms have first appeared has been twenty months before roentgen treatment and an average of forty-three months after the beginning of roentgen treatment, making a total duration of life of sixty-three months, or more than five years.

PRIMARY OPERABLE CASES

In the primary operable group we have had only fifty-two patients who were referred more than three years ago (V-T). Of the thirty-nine in whom there was no reasonable doubt as to the diagnosis, twenty-seven, or 87 per cent, are apparently well five years later, and of the thirteen in whom the diagnosis of malignant disease was doubtful, 76 per cent are apparently well five years later.

Our group of cases of primary operable carcinoma of the breast is too small to permit any conclusions, but it would seem that in such cases, in which the disease is operable from the standpoint of malignancy but inoperable because of some other condition or absolute of the breast, find the average duration of life from the time the growth was discovered to be four years, or forty-eight months, with proper irradiation. More recently Lee [6] has reported on seventy-three cases of primary operable cancer of the breast treated by radia-

TABLE 7.—*Statistical Study of Radiation Therapy in Carcinoma of the Breast (939 Cases); Duration of Life After the Beginning of Treatment*

Group		Months Alive		Number Years Alive																				Alive 3 Years	Alive 5 Years	Total
		6	8	1	1½	2	2½	3	3½	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20			
a. Both Preoperative and Postoperative Treatment (83 Cases)																													
A	I—Operable, no involvement of glands	6	..	..	..	1	..	2	..	..	5	1	..	1	1	..	..	..	..	..	..	..	..	..	..	1	1	12 of 19 63%	10 of 15 67%	19
B	II—Operable with involvement of glands	..	..	6	..	6	1	4	..	4	4	5	..	..	2	1	1	..	2	..	..	..	..	..	..	..	..	23 of 36 63%	15 of 32 46%	36
C	IV—Inoperable, primary and secondary	1	..	7	..	1	..	4	..	3	2	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	10 of 19 52%	3 of 14 21%	19
D	IV—Inoperable, primary and secondary	1	..	2	..	2	1	2	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	3 of 9 33%	1 of 9 11%	9
b. Postoperative Treatment (232 Cases)																													
E	II—Operable with involvement of glands	8	..	16	4	6	2	7	2	8	8	3	5	11	4	4	3	1	..	1	1	1	..	..	..	4		63 of 99 63%	46 of 96 47%	99
F	IV—Inoperable, primary and secondary	16	14	2	6	6	1	5	..	5	2	3	2	1	1	1	1	..	..	3	..	..	..	..	..	1		25 of 70 35%	15 of 58 25%	70
G	I—Operable, no involvement of glands	..	..	..	..	2	..	8	..	6	5	4	4	1	4	..	3	1	7	..	3	..	..	1	1	1		49 of 51 96%	35 of 39 89%	51
H	IV—Inoperable, primary and secondary	2	..	8	..	1	..	4	..	1	2	1	1	..	1	..	..	..	..	..	..	..	..	..	..	1		11 of 22 50%	6 of 14 42%	22
c. Recurrent Cases (404 Cases)																													
I	III—Recurrence, operable	8	1	5	3	8	1	5	2	2	3	4	3	3	1	..	1	..	3	2	2	1	1	..	..	2		35 of 61 57%	28 of 57 49%	61
J	IV—Inoperable, primary and secondary	15	1	10	9	2	2	10	..	3	2	1	..	..	..	2	1	1	..	..	1	..	..	1	1	..		23 of 62 37%	10 of 62 16%	62
K	IV—Inoperable, primary and secondary	7	2	6	3	4	1	2	..	..	2	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..		6 of 29 20%	4 of 28 14%	29
L	IV—Inoperable, primary and secondary	49	33	20	15	13	4	50	5	4	5	2	2	5	2	..	1	1	1	2	..	..	..	..	1	2		83 of 217 38%	24 of 198 12%	217
M	IV—Inoperable, primary and secondary	..	..	3	1	1	..	1	..	1	2	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..		6 of 11 54%	4 of 11 36%	11
N	IV—Inoperable, primary and secondary	4	1	6	4	4	1	2	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		4 of 24 16%	0 of 20 0%	24
d. Primary Inoperable Cases (158 Cases)																													
O	IV—Inoperable, primary and secondary	33	..	25	4	8	..	10	1	3	4	4	2	..	3	1	..	1	2	2	1	..	..	1	1	2		38 of 108 35%	24 of 108 22%	108
P	IV—Inoperable, primary and secondary	2	..	5	1	6	..	4	..	2	2	..	..	1	..	1	..	1	..	..	1	..	..	..	..	..		11 of 25 44%	5 of 17 29%	25
Q	IV—Inoperable, primary and secondary	1	..	1	1	..	..	..	..	7	1	1	..	1	1	1	..	..	1	..	..	..	..	1	..	..		14 of 17 82%	7 of 17 41%	17
R	IV—Inoperable, primary and secondary	1	..	2	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..		2 of 5 40%	2 of 5 40%	5
S	IV—Inoperable, primary and secondary	..	..	..	1	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		0 of 3 0%	0 of 3 0%	3
e. Primary Operable Cases (52 Cases)																													
V	I—Operable, no involvement of glands	..	..	..	..	1	1	2	1	5	2	4	2	1	3	1	2	2	1	1	2	2	3	1	..	2	..	35 of 39 89%	27 of 31 87%	39
T	I—Operable, no involvement of glands	..	..	1	..	..	1	..	..	1	..	1	..	4	..	1	..	1	..	..	..	..	..	..	2	1		11 of 13 84%	10 of 13 76%	13

TABLE 8.—*Results of Operation in Carcinoma of the Breast Without Irradiation and With Irradiation*

Author	Without Involvement of Glands				With Involvement of Glands			
	Operation Without Irradiation		Operation With Irradiation		Operation Without Irradiation		Operation With Irradiation	
	3 Years	5 Years	3 Years	5 Years	3 Years	5 Years	3 Years	5 Years
Greenough: South M. J. 18:187 (March) 1925	47%	....	....	....	19%	....	....	....
König	....	100%	....	....	....	39%	....	....
Bloodgood: Radiology 2:163, 1924	....	70%	....	....	....	27%	....	....
Anschütz: Fortschr. a. d. Geb. d. Strahlen. 35:1923; Lehrbuch der Strahlentherapie, Bremen, Meyer, 4, 1929	....	....	....	....	....	15%	....	....
Finsterer	....	....	....	....	....	4.3%	....	....
Doderlein	....	40%	....	48%	....	5%	....	20%
Doderlein	....	....	Completed	80%	....	....	Completed	30%
Wintz: Brit. J. Radiol. 31:150 (April) 1926	....	....	....	77%				
					Both Groups			
Schmitz: Am. J. Roentgenol. 12:531 (Dec.) 1924	....	....	....	64%	....	....	....	42%
Perthes: Zentralbl. f. Chir. 51:264 (Feb. 16) 1924	....	....	....	....	35.4%	27%	28.5%	....
Anschütz: Fortschr. a. d. Geb. d. Strahlen. 35:1923; Lehrbuch der Strahlentherapie, Bremen, Meyer, 4, 1929	100%	100%	100%	100%	41%	31%	59%	42%
Harrington: J. A. M. A. 92:208 (Jan. 19) 1929	79%	70.5%	86%	66.2%	37.8%	22.8%	41.3%	22.3%
Lehmann: Zentralbl. f. Chir. 51:262 (Feb. 16) 1924	....	....	....	....	17.9%	....	41.7%	....
Hoffman: Beitr. z. klin. Chir. 21	....	....	....	....	29.3%	....	40.0%	....
Pfahler and Parry	....	....	90%	80%	....	....	63%	47%
	75%	77%	92%	74%	30%	20%	45.5%	35%

refusal on the part of the patient, we have a means of treatment in irradiation that should not be ignored.

Lee and Herendeen,[5] in fifty-seven cases which they class as "less advanced primary inoperable" carcinoma tion alone, or combined with conservative surgery (mastectomy), with thirty-four patients (46.5 per cent) well after five years. Only nine patients of those living after five years were not proved by histologic

5. Lee, B. J., and Herendeen, R. E.: The Treatment of Primary Inoperable Carcinoma of the Breast by Radiation, Radiology 2:121 (March) 1924.

6. Lee, B. J.: Conservatism in the Treatment of Primary Operable Cancer of the Breast, Proceedings of the International Conference on Cancer, published by the British Empire Cancer Campaign, 1929, p. 131.

examination to have cancer. If these nine cases are eliminated there would still be 34 per cent of five year cures.

Finney, in Keen's Surgery, gives the average duration of life in the untreated cases as from twenty to twenty-eight months from the beginning of the disease. Sprengle, Odekop, Sibley and Paget, quoted by Ewing,[7] have estimated twenty-seven, twenty-nine, thirty-four and forty-eight months, respectively, as the duration of life in the cases in which operation was not performed, giving, in the experience and estimation of these five authors, an average natural duration of untreated carcinoma of the breast of thirty months.

Our results in the primary inoperable cases of carcinoma of the breast show an average duration of sixty-three months, while in the primary operable group the average duration of life in our cases has been 5.6 months before treatment and 104 months after roentgen treatment, making a total life of approximately 109 months, or nine years.

We still have insufficient evidence to recommend a replacement of operation by primary irradiation, and our advice would be to combine operation with irradiation in all cases in which it is possible.

SUMMARY AND CONCLUSIONS

1. This study is based on a review of 939 private patients who were referred for treatment on account of cancer of the breast and who were treated three or more years ago.

2. In 90 per cent of the cases, a lump, pain or an injury was the first sign to attract the attention of the patient.

3. The average duration of symptoms before the patients applied for any kind of treatment was nineteen months, and the average time after operation and before being referred for roentgen treatment in the postoperative and recurrent group (646 cases) was fifteen months, showing the general unfavorable group on which these statistics are based.

4. Preoperative treatment and postoperative treatment are advised, because of theoretical, experimental and clinical proof of their value. In the advanced cases of carcinoma, with involvement of glands, preoperative and postoperative treatment give 46 per cent of five year cures, while 38 per cent of the totally inoperable cases are made operable, and in 10 per cent of these the patients were alive after five years.

5. Postoperative treatment was used in 242 cases (only 25 per cent of 939 cases). Of the patients without involvement of glands 89 per cent and of those with involvement of glands 47 per cent, were symptom free after five years. We therefore advise postoperative treatment in all cases within two weeks after operation. The statistics recorded in the literature show 20 per cent of five year cures by operation alone when glands are involved, and 35 per cent when irradiation is added. Taking the good and bad reports, it is evident that postoperative roentgen treatment gives 75 per cent improvement over surgery alone, and our own records show approximately 100 per cent improvement. Primary operable carcinoma should be treated by irradiation when operation is contraindicated, but in general it would seem that a combination of surgery and irradiation adapted to the individual case may be expected to give the best results.

1321 Spruce Street.

7. Ewing, James: Neoplastic Diseases, Philadelphia, W. B. Saunders Company, 1922, p. 492.

ABSTRACT OF DISCUSSION

DR. ROY A. PAYNE, Portland, Ore: My only regret is that this paper was read before men and women most of whom are perfectly willing to accept and pass on these theories, rather than before people of wider work in medicine who need it much more than we do. When one has as a basal structure the analysis of a thousand cases, carefully prepared as Drs. Pfahler and Parry have done, and puts on it a slight superstructure as they have done, even if one cuts that superstructure of improvement of 50 per cent in half, one still has a basis for demanding that this type of preoperative and postoperative treatment be given in surgery of the breast whenever it is advised. The only thing to do is to get this kind of propaganda before the people who need it most. I hope that the time will come when preoperative and postoperative treatment with the roentgen ray is considered just as essential as the boiling of the knife before surgery takes place. In my limited experience I have noted that even in cases in which permanent results were not obtained in irradiation of carcinoma of the breast, often comparative ease from suffering was obtained, and the final death in these cases was more frequently from brain metastasis, frequently practically painless. In this alone, it has seemed to me that the treatment of even hopeless cases has been justified.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

W. A. PUCKNER, Secretary.

SODIUM CACODYLATE (See New and Nonofficial Remedies, 1929, p. 73).

The following dosage forms have been accepted:

Ampules Sodium Cacodylate-Mulford, ¾ grain, 1 cc.: Sodium cacodylate 0.05 Gm. (¾ grain) in 1 cc. of sterile solution, with 1 per cent of benzyl alcohol, added as local anesthetic.
Prepared by H. K. Mulford Company, Philadelphia.

Ampules Sodium Cacodylate-Mulford, 3 grains, 1 cc.: Sodium cacodylate 0.2 Gm. (3 grains) in 1 cc. of sterile solution, with 1 per cent of benzyl alcohol, added as local anesthetic.
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ERYSIPELAS STREPTOCOCCUS ANTITOXIN (See New and Nonofficial Remedies, 1929, p. 348).

H. K. Mulford Co., Philadelphia.

Erysipelas Streptococcus Antitoxin (Concentrated)-Mulford (see New and Nonofficial Remedies, 1929, p. 349): Also marketed in packages of one 10 cc. syringe containing 500,000 protective units, the unit being defined as one tenth of the amount of erysipelas streptococcus antitoxin required to protect 66 per cent of the mice injected with one minimal fatal dose of a virulent culture of erysipelas streptococci.

REPORTS OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT.

W. A. PUCKNER, Secretary.

PITUITARY SOLUTION SQUIBB 1 CC., 5 UNITS, AND PITUITARY SOLUTION SQUIBB 1 CC., 20 UNITS, NOT ACCEPTABLE FOR N. N. R.

E. R. Squibb & Sons market Pituitary Solution Squibb 1 cc., 5 units, and Pituitary Solution Squibb 1 cc., 20 units. The first product is one-half the strength of solution of pituitary-U. S. P., while the second is twice the strength. The Council holds that it is not in the interest of rational therapy to market strengths different from that of the standard pharmacopeial product and therefore cannot give recognition to such preparations. Accordingly, it finds Pituitary Solution Squibb 1 cc., 5 units, and Pituitary Solution Squibb 1 cc., 20 units, unacceptable for New and Nonofficial Remedies.

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SATURDAY, JANUARY 11, 1930

THE COST OF MEDICAL CARE

The interest of the public in the cost of medical care, apparently for many years dormant, seems now to be the topic of the hour. True, one may visit innumerable villages, cities and hamlets of the Middle West, the South, and even the New England states and find both the physicians and the general public little concerned in the current agitation; but in other communities it arouses burning argument and intense feeling. Much of this emotionalism is, of course, the result of propaganda and of personal issues which have little or nothing to do with the purely economic aspects of the question. Nevertheless, the work of the Committee on the Cost of Medical Care and the numerous investigations now being carried on under various auspices in new methods of medical practice make the situation one which the medical profession must consider. As has been said previously in these columns, regardless of the nature of medical practice in the future, physicians will have to do the practicing; and the success or failure of any experiment will depend on the extent to which physicians deliver what the public has been accustomed to expect from them in the way of prevention and cure of disease.

The most recent publication of the Committee on the Cost of Medical Care concerns hospital service for patients of moderate means. Mr. Carpenter introduces his consideration with a realization of the fact that hospitals were first constructed for the poor and then provided rooms for the rich, and that only recently have institutions begun to adapt both structure and administration to the care of the middle class. The survey revealed that 121 hospitals out of 132 whose letters tell of future plans include the provision of special facilities for patients of moderate means.

One of the greatest difficulties in adaptation of the present hospital construction and management to the problem of the middle class is the fact that various classes of service are provided under one roof, much as occurs on board ship. Here enter in all the problems of pride, comparisons in food and dishes and linens and decoration, and all those other psychologic and esthetic factors on which scientists and economists are likely to lay little stress but which play such a large part in human life. Already buildings are being developed wholly devoted to one type of hospital service.

Hospital rooms with service can now be had at prices varying from six dollars a day to as much as the patient cares to pay, these rates being after all about the same as for the hotels; and the latter do not provide food. Nevertheless, a person who selects a middle class or low middle class hotel when he travels is likely to want the best of hospital accommodations when he is sick. Ward beds and semiprivate beds in rooms for two or four may be had for much smaller charges than single private rooms. However, associated with the charge for the room are such charges as laboratory, anesthetic, roentgen-ray, special nursing and operating room fees, for which the patient is usually not prepared and which serve not infrequently to bring his total bill to a sum that arouses consternation. Suggestions have been made for elimination or redistribution of such fees, charging them to the room charge or to the flat-rate operation or obstetric fee; but the whole matter of administration is still in an experimental stage.

It is argued that the patient may be able to pay the hospital and special fees and not be able to pay the physician, and vice versa. Of the former state of affairs, physicians are unfortunately too fully cognizant. Hospitals, nurses, ambulances and all the other services are likely to collect before the physician renders and secures payment for his bill. Some institutions are planning to submit one bill covering all fees, and others to establish maximum charges for certain types of medical, surgical or obstetric care. Here are experiments which will be full of grief and grievances before their answers can be known.

Mr. Niles Carpenter, who submits this report for the Committee on the Cost of Medical Care, in his concluding paragraphs arrives at a question which physicians, through their experience, have been asking for several years. "Would the patient of moderate means be able to pay for his hospital care even if the entire hospital world should adopt every one of the new policies outlined in this study?" The advances of modern medicine are amazing and costly. The problems of medical care cannot be separated from all the other economic situations of modern civilization. It is true that far more patients are going to hospitals for medical care than actually require hospitalization from the medical point of view; but the home has disappeared and the helpmate who used to nurse the sick is now a clerk, a secretary or an advertising copy writer, whose income must not be disturbed. The only possible place for the care of the ailing member of the family is the hospital. If the hospital is too expensive, somebody will have to wait for his money; and it requires no Ph.D. to guess who that somebody is going to be

RESUSCITATIONS AND INTRACARDIAC INJECTIONS

The power to revive the dead is one that the physician is often, but vainly, expected to exhibit. The alleged miracles of such revivals are always widely reported in the newspapers. The form of the newspaper report is usually somewhat as follows: "John Jones was dead. He had stopped breathing, and his heart no longer beat. Dr. James Smith, arriving, tried the desperate means of injecting epinephrine directly into his heart. Gradually Jones' color, etc., etc., and he was taken to the hospital." Physicians who have heard of these alleged resuscitations are tempted to employ the same means. If the death was real, no harm and no benefit results. Revival follows sometimes, perhaps not because of the treatment but in spite of it. In such cases there is indeed grave danger that serious injury may follow from the treatment that the patient has received. Whether or not the patient suffered afterward from a hemopericardium, or from a pericardial infection initiated by the hypodermic needle inserted without adequate asepsis, is not usually stated in subsequent reports.

The evidence seems conclusive that, if the patient revives after such an intracardiac injection, he would have revived without it. The heart has a well developed system of arteries ramifying through its muscle. These supply it with oxygen, sugar and the salts that are essential to its function. A solution that is injected into one of the chambers of the heart, either an auricle or a ventricle, right or left, does not reach the tissue of the heart in any considerable amount. Injection into the cardiac muscle itself affects only a small area.

The condition of the heart itself, not what the physician injects, is the critical factor. If the condition is one of syncope or collapse, the blood pressure may have fallen to a minimum and the heart may beat so feebly as to be imperceptible. Yet, if the body is kept warm and recumbent and artificial respiration is administered by the prone pressure method so as to ventilate the lungs and to press blood from the abdomen toward the heart, after a short time the heart may recover enough force to renew the circulation. Arterial pressure is then restored and spontaneous breathing follows.

If, however, the condition is one of ventricular fibrillation due to electrical shock or to a coronary occlusion, there are no effective means for revival that are as yet clinically applicable. Hooker [1] has shown recently that, in dogs in which ventricular fibrillation has been induced by electrical shock, the fibrillation can be overcome by injection of a solution of potassium chloride into the carotid artery toward the heart, so as to perfuse the coronary arteries themselves. Potassium brings the heart to a standstill and thus ends the fibrillation. When this solution is then washed out with a saline solution containing calcium, a normal beat may return. But this investigator finds that injection of potassium chloride into a heart chamber is ineffective. Epinephrine is still more ineffective since it does not overcome fibrillation even when perfused directly through the coronary vessels.

The conclusion to be drawn from these facts is clear and decisive. Intracardiac injection is not a justifiable measure for resuscitation. As Henderson and Haggard [2] have emphasized, the less the physician uses his apparatus for hypodermic injections on patients requiring resuscitation, the better. Reliance should be placed on the standard measures for resuscitation: artificial respiration by the prone pressure method, inhalation of oxygen and carbon dioxide, measures to keep the patient warm, continuance of the recumbent position, and absolute rest until resuscitation is complete. Reports of resuscitation by intracardiac injections belong with the miracles.

1. Hooker, D. R.: On the Recovery of the Heart in Electric Shock, Am. J. Physiol. **91**: 305 (Dec.) 1929.

BACTERIA IN PREPARED INFANT FOODS

The care and cleanliness with which most of the commercially prepared foods are made has in recent years been taken as a matter of course by the consumer. Through federal and state control and, in many instances, through sanitary measures instituted from within the industry itself, the essential wholesomeness of the vast amount of food now prepared outside the home for human consumption has been successfully safeguarded according to current sanitary codes. This has been especially true in those industries engaged in the preservation of food by such processes as canning, curing, smoking and drying. Attention has recently been called by G. J. and Alice M. Hucker [3] to the fact that the commercial manufacture of infant foods is an industry which, up to the present time, has received little attention from control officials and for which no sanitary standards have been set up. Included in this group of products are dried milk, various substances added to fresh cow's milk to modify it, and mixtures which, when reconstituted with water, produce a complete diet for infants. The increasingly wide use of such materials in infant nutrition would seem to justify official supervision according to methods accepted as efficacious in the preparation of other foods. Since the basic ingredient of most infant foods is milk, it would appear that the bacteriologic examination so widely used in sanitary control of milk might likewise be employed in this case.

In the investigation cited, representative samples of various types of infant foods were examined by accepted bacteriologic procedures and it was found that the numbers of organisms varied from 10 to 600,000 per

2. Henderson, Yandell; and Haggard, H. W.: The Treatment of Carbon Monoxide Asphyxia by Means of Oxygen and CO_2 Inhalation, J. A. M. A. **79**: 1137 (Sept. 30) 1922. Henderson, Yandell: Resuscitation from Carbon Monoxide Asphyxia, from Ether or Alcohol Intoxication, and from Respiratory Failure Due to Other Causes, ibid. **83**: 758 (Sept. 6) 1924.

3. Hucker, G. J., and Hucker, Alice M.: Tech. bull. 153, New York State Agr. Exp. Sta., 1929.

gram of dried preparation, with an average of 20,000. Of the various types of food preparations studied, those requiring only the addition of water to make a complete diet contained the largest number of bacteria. The predominating types of organisms occurring in baby foods were spore forming together with limited numbers of miscellaneous micrococci. In a large proportion of the cases the spore formers were thermophilic, while most of the cultures were of the peptonizing type. In a previous study [4] the authors did not find hemolytic organisms of either pathogenic or nonpathogenic type in nearly twenty samples of infant food. It is obvious that the bacteria in such preparations are either present in the raw materials or gain entrance in the course of mixing and packing operations. Although milk powder enters into the composition to a large extent and the bacteriologic content of milk is greater in summer than in winter, correlation between seasonal production of the baby foods and bacterial count was not observed.

Interest is immediately aroused in the lowest bacterial content safely permissible in infant food preparations and in the possibility of reasonably maintaining this limit under conditions of manufacture on a commercial scale. The Huckers propose the same standard for these food materials as is in force for certified milk; namely, less than 10,000 organisms per gram. In a further study [5] they have collaborated with a large manufacturer of infant foods in an effort to determine to what extent this standard can be approached or actually met in the plant. Sanitary pipe lines were installed and the means of cleaning these at intervals provided, apparatus so adjusted that live steam sterilization was possible, and sufficient heat to sterilize was employed when heat processing was involved. The effect on the number of bacteria in the product was striking. In eighty-nine samples with the number of colonies varying from 17,000 to 60,000 per gram before the change was made, the bacterial count was reduced to less than 10,000 and the conclusion is reached that this improvement in sanitary aspect of the product is practical from the point of view of economical plant operation.

The contributions of investigations in nutrition to human welfare have been considerable, but probably no group of persons has benefited more than have the babies. The need for infant foods prepared commercially in accordance with the accepted principles of adequate nutrition is obvious. That more systematic control is desirable is evident from such occasional occurrences as the outbreak of enteritis recently reported by G. F. and Gladys H. Dick and J. L. Williams [6] and ascribed by them to contaminated ready prepared infant foods. The success of the dairy industry can be attributed in no small degree to the general high level of sanitary control maintained, and it now appears that similar measures can readily be used in the manufacture of infant foods.

4. Hucker, G. J., and Hucker, Alice M.: Organisms Associated with Commercially Prepared Infant Foods, Am. J. Dis. Child. **38**: 310 (Aug.) 1929.

5. Hucker, G. J., and Hucker, Alice M.: Tech. bull. 154, New York State Agr. Exp. Sta., 1929.

6. Dick, G. F.; Dick, Gladys H., and Williams, J. L.: The Etiology of an Epidemic of Enteritis Associated with Mastoiditis in Infants, Am. J. Dis. Child. **35**: 955 (June) 1928.

Current Comment

VETERINARY BLOOD GROUPING

Stimulated by surgical and medicolegal necessity, reliable technical methods have been developed for the determination of human blood groupings. Attempts to apply the same technic to lower animals, however, have given negative or inconclusive results. As late as 1927, for example, Kunz was unable to demonstrate blood groupings in domestic cattle. Technical methods applicable to veterinary medicine, however, have recently been developed, the essential feature of the veterinary technic being an immediate centrifugation of the serum-corpuscle mixtures. In strongly positive hemagglutination the centrifugated corpuscles form a solid disk at the bottom of the tube, remaining intact when shaken, and floating round in the clear supernatant fluid. In weaker agglutination the disk breaks up into larger or smaller fragments. In negative reactions the packed corpuscles are readily dispersed throughout the supernatant fluid. Applying this new technic, Dr. R. B. Little [1] of the Rockefeller Institute, Princeton, N. J., has been able to demonstrate three blood groups in domestic cattle, with the suggested possibility of a fourth, or aberrant, group. His observations open the possibility of detailed study of hereditary factors and biochemical mechanism, so difficult in human medicine.

NATURE OF GLOMERULAR ACTIVITY

Biologic phenomena are usually the result of an equilibrium between more or less conflicting forces. This is strikingly true with reference to the composition of the blood; the physiologic level of concentration of the various components is a resultant of the accumulation through absorption and metabolic activity and the removal by oxidation, storage or excretion through the kidneys and lungs. Since the amount of such blood components present is of importance to the normal function of the body, the removal becomes of considerable significance in the maintenance of the particular equilibrium concerned. From this point of view it is of great practical interest to obtain a more satisfactory concept of the details of the mode of action of the kidney. Studies on the renal physiology of the lower animals as well as statistical clinical observations have in the past yielded information of value. In order to obtain data as to whether glomerular activity is one of filtration entirely or only in part White [2] has examined the pressure relationships existing between the intracapsular fluid and the plasma in *Necturus*. Designating the effective filtering head as the difference between the capillary pressure and the sum of the intracapsular pressure and the colloidal osmotic pressure of

1. Little, R. B.: Iso-Agglutinins in the Blood of Cattle, J. Immunol. **17**: 377 (Nov.) 1929.

2. White, L. H.: Am. J. Physiol. **90**: 689 (Nov.) 1929.

the serum, he observed certain cases with sluggish circulation in which this value was negative even though the glomeruli were eliminating fluid. Lest this situation might not be normal, White increased the intracapsular pressure in otherwise normal glomeruli until the effective filtering head was less than zero; here likewise active production of glomerular fluid continued. From these purely physical experiments the same deductions can be drawn as were previously reached from comparative chemical studies of blood and plasma; namely, that the glomerular membrane functions both by filtration and by secretion. These observations fortify the conviction that few membranes in the body act under normal conditions as passive filters but rather exert an active influence in absorption or secretion.

THE REFRACTIVE INDEX OF SPINAL FLUID

The contributions of physics to medical science are the more valuable because of the accurate methods of measurement that physicists have developed. By using the dipping refractometer of Zeiss, angles of refraction can be measured with such accuracy that it is possible to express the refractive index of a translucent fluid to five places of decimals. During the last few years, observations have been made with this instrument on the cerebrospinal fluid in health and in disease. A valuable addition to our knowledge of the normal refractive index of this fluid and of certain variations to be expected in disease has recently been made by two workers in the Baker Research Institute of Melbourne, Australia.[1] The normal range of the refractive index was determined from samples withdrawn before the induction of spinal anesthesia and was found to give an average, for seven protein free fluids at 17.5 C., of 1.33510. The average deviation of the individual observations from this figure was 0.00002 and the extreme deviation 0.00006. The fact that larger variations have been described by previous workers as within the normal range may be due, as the Australian writers suggest, to a failure to distinguish clearly the limits of normality. On the other hand, the conclusion of the latter that a deviation exceeding 0.00008 above or below 1.33510 is to be regarded as pathologic must be accepted with caution in view of the small number of normal samples observed. A further contribution made in this study and one that is also out of accord with previous results is that the age of the patient has no significant effect on the refractive index of his spinal fluid. Finally, the investigators report a number of interesting observations in various pathologic states. The highest indexes were found in association with uremia and diabetes on account of the high sugar or urea content of the fluid. In meningitis the fall in chlorides frequently neutralizes the effect of the rise in protein on the refractive index. In a case of syphilitic meningitis a definite fall in the refractive index was noted. Further observations with this method will no doubt enable better judgment as to its value in diagnosis and as to its utility.

1. Penfold, W. J., and Price, C. A. E.: The Refractive Index of the Cerebrospinal Fluid, M. J. Australia **2**: 424 (Sept. 28) 1929.

GASTRO-INTESTINAL ABSORPTION OF UNDIGESTED PROTEINS

Biochemists and physiologists teach that, in normal digestion, proteins are completely hydrolyzed to peptones and amino-acids and are absorbed as these end-products through the gastro-intestinal mucosa. Undigested or partially digested proteins are assumed to be absorbed only under pathologic conditions. However, immunologists[1] have apparently demonstrated that the absorption of undigested or incompletely digested proteins is the rule rather than the exception in normal physiologic functions. Gastro-intestinal absorption of incompletely digested proteins is shown by the passive transfer of specific cutaneous hypersensitiveness. If 0.05 cc. of the serum of an hereditary egg-protein hypersensitive individual, for example, is injected intradermally into a normal person and the next day this normal person is given a raw-egg diet, in nine cases out of ten the raw-egg meal is followed within twenty minutes by a local skin reaction at the site of the serum injection, usually increasing to a distinct cutaneous wheal. The reaction usually lasts about two hours. Since such cutaneous reactions have the same specificity as the ordinary medicolegal protein tests, and since specific protein reactions are not possible with the end-products of peptic or tryptic digestion, the conclusion seems inevitable that in 90 per cent of all normal individuals a sufficient gastro-intestinal absorption of incompletely digested egg-proteins takes place to raise the egg-protein titer of the circulating blood above the hypersensitive cutaneous reacting threshold. The most important problems in protein metabolism are problems relative to the subsequent fate of these circulating, incompletely digested foreign protein substances.

SMALLPOX—AN UNENVIABLE RECORD

Several foci of smallpox in this country continue to menace the public health. The Indiana State Health Department reports that in November smallpox showed an increase of about 450 per cent in Indiana over the same month of last year. The Illinois State Health Department reports that November was the worst smallpox month in eight years. Illinois, up to the first of December, had 3,733 cases over a wide area of the state except in Chicago, where there has been unusual freedom owing to a largely vaccinated population. The eleven months' record in Illinois caused 7,466 persons to spend a total of 430 years in quarantine and the public paid out $100,000 in an effort to control the disease. Small outbreaks have occurred in up-state New York and in states west of the Mississippi. The surgeon general of the U. S. Public Health Service said in his recent annual report that, year after year, more cases of smallpox are reported in the United States than in any other country of the world except British India. The cases reported during 1928 numbered 38,000. Severe epidemics have occurred within six years in two Western cities, resulting in loss of life

1. Walzer, M.: A Direct Method of Demonstrating the Absorption of Incompletely Digested Proteins in Normal Human Beings, J. Immunology **11**: 249 (April) 1926.

and great expense to those communities. The present outbreaks are mild. Experience shows that when smallpox prevails for some time in a mild form there is liable to be a sudden increase in virulence accompanied by the appearance of the fatal form. This change will not occur in a community that has a large part of its population protected against smallpox by vaccination. It is not the vaccinated communities that have given the United States its present unenviable reputation with regard to smallpox.

Association News

MEDICAL BROADCAST FOR THE WEEK

The American Medical Association Morning Health Talks and Evening Health Hints from Hygeia

The American Medical Association broadcasts daily at 10 o'clock, Central Standard Time, with the exception of Friday, when the health message is delivered at 9:45, over Station WBBM (770 kilocycles, or 389.4 meters).

The program for the week of January 13-18 is as follows:

January 13. "Eye Hazards in Industry," by Dr. R. G. Leland.
January 14. "The Mysterious Home Remedy," by Dr. Arthur J. Cramp.
January 15. "Home Accidents and Their Prevention," by Dr. R. G. Leland.
January 16. "Neuritis," by Miss Lois Stice.
January 17. "The Home Treatment of Obesity," by Dr. R. G. Leland.
January 18. "The Home Treatment of Obesity," by Dr. R. G. Leland.

Evening Health Hints from Hygeia, 8 o'Clock, Central Standard Time

January 13. Eight Hours of Sleep.
January 14. Open Season for Gas Poisoning.
January 15. Why the Common Cold is Serious.
January 16. Dangers of Whooping Cough.
January 17. Bow Legs and Knock Knees.
January 18. Good Lighting Helps to Prevent Accidents.

THE DETROIT SESSION

Announcement of Exhibit under Auspices of the Section on Urology

The officers of the Section on Urology have authorized a section exhibit in the Scientific Exhibit dealing with the subject of cancer of the bladder. The membership of the committee appointed is as follows: Fletcher Colby, M.D., Boston; George Livermore, M.D., Memphis, and George Gilbert Smith, M.D., Chairman, Boston.

The committee points out that the material which is desired may be classified as follows:

(*a*) Unusual roentgenograms showing bone metastases from cancer of the bladder.
(*b*) Gross preparations of bladder tumors.
(*c*) Microscopic preparations of bladder tumors.
(*d*) Experimental work bearing on electrocoagulation and the action of radium and roentgen ray.
(*e*) Apparatus for applying these therapeutic measures to the treatment of cancer of the bladder.
(*f*) Statistical data concerning the incidence of bladder tumor.

The members of the specialty are asked to take an inventory of the materials that might illustrate phases of cancer of the bladder and communicate with the committee chairman, Dr. George Gilbert Smith, 6 Commonwealth Avenue, Boston, Mass. All applications must be made on the regular application form, which is the one required by the A. M. A. Committee on Scientific Exhibit. A circular letter giving information concerning this exhibit, together with the usual application blank, will be sent to those who have registered in the section during the last three years. Those who have not registered in this section but who are interested in such an exhibit may obtain a circular letter and application blank by sending the request to Dr. Smith. Applications should be filed not later than March 1 with Dr. Smith.

Hotel Rates

Rates to be charged by Detroit hotels at the time of the annual session of the American Medical Association in that city June 23 to 27, 1930, will be printed in the next issue of THE JOURNAL.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALASKA

Hospital News.—The Petersburg General Hospital, Petersburg, has been remodeled and reopened and now has a capacity of fifteen beds. Among members of the staff is Dr. Joseph O. Rude, a graduate of the University of Minnesota School of Medicine. The superintendent is a graduate of the nurses' training school of the Presbyterian Hospital of Chicago.

CALIFORNIA

Trichinosis Reported.—Fifteen cases of trichinosis had been reported in San Francisco, Dec. 24, 1929; Dr. William C. Hassler, city health officer, issued a warning against eating pork unless it is thoroughly cooked.

Society News.—The council of the San Diego County Medical Society voted, Dec. 3, 1929, to increase the society's dues to $22 in order that the one additional dollar may go to the library for equipment.——The San Diego County Medical Society, Dec. 10, 1929, conducted a symposium on backache, in which the speakers were Drs. William B. Bowman, Los Angeles, Maynard C. Harding and Fraser L. MacPherson.

Survey of Drug Stores.—During the last few weeks, the bureau of foods and drugs has carried on an intensive survey of drug stores throughout the state in an effort to remove from the market mislabeled drugs and "patent medicines." In accordance with the regulations of the U. S. Department of Agriculture, products labeled as a cure for influenza will be classed as misbranded within the meaning of the California Drugs Act and treated accordingly. In the survey now under way, the proprietors of drug stores have willingly cooperated with the bureau.

Mussel and Clam Quarantines Lifted.—The quarantine established, July 22, 1929, along the California coast, under which the sale or offering for sale of mussels gathered on the coast from Monterey County to Del Norte County was prohibited, has been lifted. Examinations of clams and mussels gathered in that area have shown that their toxic condition has disappeared. Of the fifty-five cases of poisoning due to eating mussels, only one was fatal, but of the six cases of poisoning due to eating clams, three were fatal. It appears that these shell-fish become toxic each year, particularly during the summer months. They are considered harmless from November 1 to March 1.

INDIANA

Meningitis Closes Indianapolis Schools.—Health authorities are reported to have closed the high schools, colleges, and grade schools in Indianapolis on account of the epidemic of cerebrospinal meningitis. A total of nearly fifty deaths have occurred in the state. Sixty cases were reported in Indianapolis in December and thirteen in other parts of the state. The city council of Indianapolis is reported to have appropriated $5,000 to be used by the board of health to help combat the epidemic.

KANSAS

Society News.—Dr. Edwin A. Tufts, Arkansas City, addressed the Sumner County Medical Society, Nov. 7, 1929, on "Tuberculosis of the Female Genital Tract." Members of Cowley County, Kan., and Kay County, Okla., medical societies were invited and about sixty physicians were present. Drs. Benedict A. Spalding, Jr., Arkansas City, presented a paper on diabetes mellitus, Leroy A. Calkins on "Vomiting of Pregnancy," and Peter T. Bohan, Kansas City, on "Differential Diagnosis of Visceral Disease from an Affection of the Nerve Supply to the Abdominal Wall as a Cause of Abdominal Pain." Dr. Bohan also gave a medical clinic.——The Shawnee County Medical Society was addressed, Dec. 2, 1929, by Dr. David S. Hillis, Northwestern University Medical School, Chicago, on

"Obstetric Problems for the General Practitioner."——Dr. Thomas Rivers of the Rockefeller Institute for Medical Research, New York, addressed the Kansas City Academy of Medicine, Nov. 22, 1929, on "The Filtrable Virus."

KENTUCKY

Society News.—The recently organized Floyd County Medical Society, Prestonsburg, was addressed, Nov. 27, 1929, by Dr. Marvin Ransdell, director, Floyd County Health Department, on "Prevention of Diseases."

Personal.—Dr. Thomas F. Long, director, Magoffin County health department, resigned, Dec. 14, 1929.——Dr. Claude E. Kidd has resigned from the staff of the Illinois Central Hospital at Paducah after eight years' service.——Dr. Charles R. Morton, Hanson, was elected health officer of Hopkins County.——The assistant federal prohibition administrator at Louisville, W. H. Taylor, has issued an order, it is reported, that all physicians in Kentucky who seek permits for prescribing whisky must have their application approved by the secretary of the state board of health, Dr. Arthur T. McCormack.——Dr. Charles R. Wright of Somerset has been appointed ship surgeon of the *Venezuela*, one of the Panama Mail Steamship Company's boats.

LOUISIANA

Sheriff Closes Hospital.—Following litigation beginning about six months ago when the mortgage was foreclosed, the Presbyterian Hospital, New Orleans, was closed by the sheriff, Dec. 9, 1929, and the patients were evacuated to other hospitals in New Orleans. The hospital is said to be in debt about $145,000, and a recent drive to raise funds was not entirely successful. The Presbyterian Hospital was organized about twenty years ago. Most of the nurses in training were transferred to the Baptist Hospital, as were two of the interns.

Personal.—Sidney W. Bliss, Ph.D., has been appointed head of the department of biochemistry at Tulane University of Louisiana School of Medicine, New Orleans.——Dr. Henry E. Walther was elected president of the Art Association of New Orleans, Dec. 7, 1929, for the third time.——Dr. Rudolph Matas, emeritus professor of general and clinical surgery, Tulane University of Louisiana School of Medicine, has returned from a tour of Europe of several months' duration which was undertaken following his attendance at the International Congress of Surgery at Warsaw in July. Dr. Matas remained in New York several days to complete his report as a delegate to the surgical congress prior to returning to his home in New Orleans.——Dr. Stanford Chaille Jamison was reelected president of the Orleans Parish Tuberculosis and Public Health Association of Louisiana, Nov. 20, 1929.——Drs. C. Jeff Miller and John H. Musser, recently elected presidents of the American College of Surgeons and of the American College of Physicians, respectively, were guests of honor at the annual banquet of the Orleans Parish Medical Society, Dec. 14, 1929.

MARYLAND

University News.—The University of Maryland received a gift recently totaling about $150,000, which Mrs. Lillie H. Coit, San Francisco, willed in honor of her father, Charles M. Hitchcock, a graduate of the medical department of the University of Maryland. The fund will be named in his honor and the income used for the medical department.

Society News.—Dr. Robert H. Riley, chairman and director, state department of health, and Dr. William W. Ford of the department gave addresses on cancer before the Baltimore City Medical Society, Dec. 20, 1929.——Members of the West Baltimore Medical Association are, during January, broadcasting Tuesdays and Thursdays over Station WCBM from 7:05 to 7:20 p. m., as part of the society's policy on public health education.——The state department of health says that the infant mortality rate in Maryland, for the total white and colored populations, has declined 24 per cent in the last ten years.

MICHIGAN

Society News.—The Ionia-Montcalm Counties Medical Society, Belding, was addressed, Dec. 10, 1929, by Drs. Orla H. Gillett, Grand Rapids, on "Abdominal and Tumor Surgery," and William J. Butler, Grand Rapids, on "Bladder and Kidney Infections of a Medical and Surgical Nature."

Personal.—Dr. John J. Griffin has resigned as health officer of Sault Ste. Marie on account of ill health.——Dr. William H. Pickett, Saginaw, resigned his position as city health officer to accept an appointment with the state department of health, Detroit.——Dr. Paul G. Hanna was appointed city health officer of St. Joseph, Dec. 9, 1929, to succeed the late Dr. Andrew L. West.

MINNESOTA

Personal.—Dr. Samuel P. McDaniel, for eight years school physician and village health officer, was elected mayor of Mountain Iron at the annual election, Dec. 3, 1929.——Dr. Charles Bolsta, Ortonville, has been appointed by the governor a member of the Minnesota State Board of Examiners in the basic sciences for a six year term.——Dr. John Watson's son, Leland, has been granted a Rhodes scholarship entitling him to a three year course of study at Oxford University, England.

NEW HAMPSHIRE

Gift for Research.—Dr. John P. Bowler, dean of Dartmouth Medical School, Hanover, announced, Nov. 26, 1929, that Mr. John D. Rockefeller, Jr., had given $80,000 to the school for research in physiologic optics.

NEW JERSEY

Personal.—Dr. Archibald G. Fletcher, superintendent of the Leper Hospital of the American Mission to Lepers at Taiku, Korea, has been awarded the blue ribbon decoration of the emperor of Japan in consideration of his twenty years' work among the lepers.——Mr. Prescott R. Loveland, Atlantic City, has been appointed secretary of the New Jersey Pharmaceutical Association.

Society News.—The Sussex County Medical Society recently celebrated its centennial anniversary at Pompton Lakes. Among the guests were Drs. Andrew F. McBride, Paterson, and Henry O. Reik, president and executive secretary, respectively, of the state medical society. Dr. Frederick H. Morrison read a paper on the history of the society.——Dr. John M. Fisher, associate professor of gynecology, Jefferson Medical College, Philadelphia, addressed the Atlantic County Medical Society, January 10, on "Cancer of the Uterus—a Preventable Disease."

NEW YORK

Society News.—More than 35,000 people attended the public health week conducted recently in Albany.——The Medical Society of the County of Queens realized more than $25,000 from the bazaar recently held at the opening of its new building in Forest Hills. This will be used to furnish the society's rooms in the building.

Personal.—Dr. Hartley G. Dewey has resigned from the Warwick Hospital, Warwick, to become director of medical service for Yosemite National Park, California.——Dr. David H. Kling, formerly director of the clinical laboratory of the Golden State Hospital, Los Angeles, has been awarded a fellowship for 1930 to do research work at the Hospital for Joint Diseases in New York.

New York City

Fourth Harvey Lecture.—Dr. Alan M. Chesney, associate professor of medicine, Johns Hopkins University School of Medicine, Baltimore, will deliver the fourth Harvey Society Lecture at the New York Academy of Medicine, January 16, on "Acquired Immunity in Syphilis."

Psychologic Experiment on Coffee Drinking.—The department of psychology at Columbia University has issued a call for thirty-six students to be subjects of an experiment to study the effects of coffee drinking. They are intended to determine the effects of caffeine on the motor and mental capacities. The group will be equally divided between the men and women; one third of them are to drink untreated coffee, one third are to drink "decaffeinated" coffee, and one third are to drink nothing as controls. They are to receive a fee of a dollar an hour for drinking coffee.

Hospital News.—The new $250,000 three story structure of the Richmond Memorial Hospital, Staten Island, was dedicated, Dec. 15, 1929. It has sixty-four beds. The furnishings and the equipment were given by Staten Island families as memorials. The hospital itself is a memorial to Staten Island's dead in the World War.——The Jewish Maternity Hospital, 270 East Broadway, and the Beth Israel Hospital, Livingston Place, have consolidated into the Beth Israel Hospital Medical Center. The Jewish Maternity Hospital, established in 1906, will maintain its separate identity as a scientific unit. The Beth Israel Hospital, which has served the public since 1890, opened a new 500 bed building six months ago.

Anniversary of Distribution of Free Antitoxin.—The new year is said to mark the thirty-fifth anniversary of the free distribution of diphtheria antitoxin produced in the antitoxin laboratory of the New York City Department of Health. In 1894, Dr. Biggs attended the International Medical Congress in

Budapest, where the first reports on the clinical results with antitoxin were presented. In the meantime, the New York *Herald* opened a public subscription to an antitoxin fund, which Biggs, Prudden, Thacher and Brannan accepted and took steps to make antitoxin available to the poor. At that time the only antitoxin available was imported from abroad. On Jan. 1, 1905, the city health department of New York was able to supply the first diphtheria antitoxin made in this country, first sending it to the hospitals, and shortly afterward distributing it to the poor.

Society News.—The report for the fiscal year 1929 from the city health commissioner shows that about 600 fewer deaths occurred than in the previous year, and 870 fewer deaths in children under 1 year of age. There was a decline in infectious diseases.——The New York Academy of Medicine was addressed, January 10, by Dr. Joseph C. Bloodgood, clinical professor of surgery, Johns Hopkins University School of Medicine, Baltimore, on the cancer problem.——Dr. David M. Levy, chief of staff, Institute for Child Guidance, beginning January 15, will give a course of afternoon lectures on "Behavior Problems in Children" and "Case Studies in Mental Hygiene," at the New School for Social Research.——The annual demonstration of current research work in biology was held by the members of the section of biology of the New York Academy of Sciences at the American Museum of Natural History, Dec. 8, 1929.

Preliminary Report of Noise Abatement Commission.—Edward F. Brown, director of the Noise Abatement Commission, appointed by the health commissioner to make a study of the possibilities of reducing unnecessary noise, has made public the first preliminary report on the effect of noise on man. Members of the committee are Drs. Bernard Sachs, Arthur B. Duel, Samuel J. Kopetzky, Foster Kennedy and Frederick Tilney. The report states that Dr. Kennedy has undertaken experiments in Bellevue Hospital to ascertain the effect of sudden noise on blood pressure, heart rhythm and "brain pressure," which are being conducted by means of the electrocardiograph, the sphygmomanometer, and especially devised apparatus to determine the pressure within the skull. In summing up, the report says: 1. It is well established that the normal development of infants and young children is seriously interfered with by constant loud noises. 2. In attempting to overcome the effects of noise, a great strain is put on the nervous system leading to neurasthenic and psychasthenic states. 3. Noise interferes seriously with the efficiency of workers and makes concentration on any set task difficult. 4. Noise interferes seriously with sleep, even if a few become tolerant. 5. Hearing is apt to be impaired in those exposed to constant loud noises.

Duties of Six Hundred Public Health Nurses.—A few months ago the department of health reorganized its nursing service, forming the bureau of nursing to which all of its 600 public health nurses were assigned. New York's nurses work in four divisions: the home, the school, the clinic and the baby health station. Home visiting nurses make regular trips to families where there are acute infectious diseases, to discover what is needed and to get some one else to take care of the need, or to instruct the family how to take care of their health needs themselves. The school nurses are organized into squads to inspect pupils, to detect illness or contagion, and to assist school physicians in making examinations, vaccinations and immunizations, and to give first aid and minor treatments. Public health nurses, assigned to the baby health stations, advise women about to become mothers and then aid these mothers through consultation and mothers' meetings in starting the child in life with proper health habits. Another group of nurses is in part responsible, the health commissioner says, for the results of the city's various clinics. A squad of eleven nurses is assigned to visit every foster home which cares for children under the supervision of the health department. This squad is assigned also to visiting registered midwives to make sure that they are conducting their work properly and to assist them in providing expectant mothers with prenatal care.

OHIO

University News.—The University of Cincinnati has announced the appointment of twenty directors of departments in the general hospital and the tuberculosis sanatorium, all of whom are said to be faculty members of the University of Cincinnati College of Medicine.

Injunction Delays Apple Creek Building.—A taxpayer filed a suit to enjoin the state from continuing with the construction of several buildings of the new institution for the feebleminded at Apple Creek, and Judge Barnes, sitting on the Franklin County common pleas bench, granted a permanent injunction. The taxpayer charged that the contract awarded to the construction company was not given to the lowest bidder, and that the appropriation made by the legislature for the institution did not provide for constructing the buildings for which the contract was let. The state has indicated its intention to appeal from the court's decision.

Personal.—Dr. Paul D. Garvin, Denver, Colo., has been appointed assistant health officer of Richland County.——Dr. Isaac B. Harris has tendered his resignation as a member of the board of health of Columbus.——Dr. Edward C. Banker has been appointed chief of staff of St. Thomas Hospital, Akron, for the ensuing year.——Dr. Ezias R. Earle was recently elected president of the Kiwanis Club of Urbana.——Dr. Austin W. Holman has been elected health officer of Pickaway County to fill the unexpired term of Dr. George W. Heffner, who resigned on account of ill health.——Mr. Henry C. Gerber, Jr., has been selected to succeed Mr. William J. Burns as executive secretary of the Toledo Academy of Medicine, effective January 1. Mr. Burns, who has held that position for four and one-half years, resigned, December 3, to accept a similar position with the Wayne County Medical Society, Detroit.

Society News.—Dr. Sherman Davis, Indiana University School of Dentistry, addressed the Toledo Academy of Medicine recently on "Morphologic Changes in the Soft Tissues Found in Some Deficiency Diseases."——The Academy of Medicine of Cleveland held an exhibit of the art work and hobbies of its members at the annual meeting, Dec. 20, 1929. The exhibit was open to the public for a few days. Dr. Wingate Todd addressed this meeting on "Votaries of the Dragons."——The Columbus General Practitioners' Society, after an existence of twenty-five years, henceforth is to be the general practitioners' section of the Columbus Academy of Medicine. The affiliation was made at a meeting, Dec. 12, 1929.——The medical section of the Toledo Academy of Medicine will be addressed, January 17, by Dr. Dyle J. Slosser, Defiance, on "Effect of Public Health Programs on the Interests of Private Physician"; Dr. Harland F. Howe, Toledo, on "Duodenal Ileus," and Dr. Murray E. Goodrich, Toledo, on "Some Considerations in the X-Ray Diagnosis of Gallbladder Disease." The academy held its annual meeting, January 3.

OKLAHOMA

Society News.—Dr. Henry H. Turner, Oklahoma City, addressed a joint meeting of the Seminole City Medical Society and the Hughes-Seminole County Medical Society, Nov. 18, 1929, on "Diagnosis and Treatment of Endocrinopathies," with lantern slides; Dr. James M. Byrum, Shawnee, on "Gallbladder Surgery," and Dr. Alonzo C. McFarling, Shawnee, on "Cooperation."——The Okmulgee-Okfuskee County medical societies were addressed, Nov. 25, 1929, at Okemah, by Dr. Edward P. Allen, Oklahoma City, on "The Obstetric Pelvis."——Dr. Marvin E. Stout has opened a seventy-five bed fireproof hospital at Thirteenth Street near Robinson, Oklahoma City.

PENNSYLVANIA

University News.—Ground was broken, Nov. 28, 1929, for the Falk Memorial Clinic, the second unit of the University of Pittsburgh's new medical center. Maurice Falk, the late Leon Falk, Sr., and Leon Falk, Jr., together, donated $900,000.

Personal.—Dr. Charles E. Remy has been appointed superintendent of the Montefiore Hospital, Pittsburgh, succeeding the late Dr. John D. Spelman.——Dr. Ralph F. Otterbein has been placed in charge of the laboratory and roentgen-ray department of the Warren General Hospital.

Society News.—Dr. Ray Lyman Wilbur, secretary of the interior, will address the eighteenth annual meeting of the Public Charities Association of Pennsylvania, January 14, at Pittsburgh. Members of the Allegheny County Medical Society are invited.——The Pennsylvania Tuberculosis Society will hold its annual meeting at Erie, January 14-15. Among the speakers will be Dr. William Irving Clark, Boston, whose subject will be "Industrial Health Work and the Prevention of Tuberculosis Among Industrial Workers."

Philadelphia

Society News.—Dr. Edward W. Beach has been elected president of the Eastern Society of Anesthetists.——Dr. William C. White, U. S. Public Health Service, Washington, D. C., addressed local physicians and health authorities at a luncheon, December 17, on "Cause and Cure of Tuberculosis." Dr. White described the results of cooperative medical research in tuberculosis carried on in the leading colleges and universities.

Neurologic Foundation Created at Temple University.—Dr. Daniel J. McCarthy, professor of medical jurisprudence

in the University of Pennsylvania School of Medicine, will have charge of the neurologic foundation at Temple University which has been created for the study and treatment of nervous conditions arising from modern living conditions. Associated in the management of the foundation will be Drs. Temple S. Fay and Nathaniel N. Winkleman. Public clinics in neurology will be conducted.

Personal.—Dr. Stephen M. Smith, formerly assistant medical director of the Philadelphia Hospital for Mental Diseases, is now associated with the Milwaukee Sanatorium, Wauwatosa, Wis. ——Dr. Edward J. G. Beardsley was elected president of the Blockley Residents' and Ex-Residents' Association at the annual meeting, December 3.——Dr. David Riesman has been elected president of the medical board of the Philadelphia General Hospital, succeeding Dr. Herman B. Allyn, who resigned after twenty-two years' service in that capacity.——Dr. William J. Harrison has been awarded the Corinna Borden Keen Scholarship for one year for pursuing graduate work in ophthalmology under Dr. Ignicio Barraquer, Barcelona, Spain.

TENNESSEE

Graduate Assembly at Memphis.—At the forty-sixth annual meeting of the Tri-States Medical Association (Mississippi, Arkansas and Tennessee) at Memphis, January 14-16, Dr. Hermon C. Bumpus, Jr., Rochester, Minn., will speak on "Cancer of the Prostate"; Dr. Jacob P. Greenhill, Chicago, on "Forceps Operations and Episiotomy"; Dr. Hugh Auchincloss, New York, "Pathologic Anatomy of Hand Infections from a Clinical Standpoint"; Dr. Emil Novak, Baltimore, "Quantitative Disorders of Menstruation and Their Treatment"; Dr. Ralph H. Major, Kansas City, Mo., "Some Phases of Arterial Hypertension"; Dr. Wells P. Eagleton, Newark, N. J., "Intracranial Complications of Aural, Nasal and Traumatic Diseases"; John A. Killian, Ph.D., New York, "Practical Value to the Clinician of Tests of Liver Function"; Dr. Robert C. Coffey, Portland, Ore., "Abdominal Emergencies"; Dr. Harold L. Amoss, Baltimore, "Unusual Complications of Undulant Fever" and "Experimental Erysipelas"; Dr. William R. MacAusland, Boston, "Operative Treatment of Tubercular Joint"; Dr. Henry A. Christian, Boston, "Diuretics and Their Uses"; Dr. Winford P. Larson, Minneapolis, "Anaphylaxis from the Standpoint of the Practitioner"; Dr. George R. Minot, Boston, "Some Aspects of the Treatment of Anemia"; Dr. John W. Williams, Baltimore, "Puerperal Infection"; Michael M. Davis, Ph.D., Chicago, "Doctor's Bills and Peoples' Billions"; Dr. Charles C. Bass, New Orleans, "Recent Advances in Treatment of Malaria"; Dr. Walter B. Lancaster, Boston, "Value of an Ophthalmic Examination to the General Practitioner"; Dr. Frank H. Lahey, Boston, "Diagnosis and Treatment of Peptic Ulcer and Gallbladder Disease"; Dr. W. McKim Marriott, St. Louis, "Acidosis and Alkalosis," and Dr. Fred W. Rankin, Rochester, Minn., "Malignancies of the Colon."

TEXAS

Society News.—The North Texas Medical Association held its ninety-ninth semiannual meeting in Dallas, Dec. 4, 1929. Dr. Rufus C. Whiddon, Gainesville, was elected president. Plans are being made for the fiftieth anniversary meeting, to be held in Gainesville in June.——Dr. Harry G. Heaney has been elected president of the medical staff of the Spohn Sanatorium, Corpus Christi; Dr. Charles P. Yeager, vice president, and Dr. Maury J. Perkins, secretary.

Health at San Antonio.—Telegraphic reports to the U. S. Department of Commerce from sixty-five cities with a total population of 30 million, for the week ending Dec. 31, 1929, indicate that the highest mortality rate (20.9) was for San Antonio, and that the mortality rate for the group of cities as a whole was 13.3. The mortality rate for San Antonio for the corresponding week last year was 17.5 and for the group of cities as a whole, 16.2. The annual rate for sixty-five cities was 13, for the fifty-one weeks of 1929, as against a rate of 12.9 for the corresponding weeks of 1928. Caution should be used in the interpretation of weekly figures as they fluctuate widely. The fact that some cities are hospital centers for large areas outside the city limits or that they have a large negro population may tend to increase the death rate.

UTAH

Society News.—The Salt Lake County Medical Society was addressed, recently, by Dr. Archibald L. Huether on "Low Back Pain" and by Dr. Joseph E. Tyree on "Back Injury." Dr. Harry Clare Shepardson, San Francisco, addressed the society, November 11, on "Diabetes."

VIRGINIA

Hospital News.—The Martha Jefferson Hospital, Charlottesville, opened a new three story fireproof building, Thanksgiving day. The structure was made possible by a gift from a resident of that city.

Personal.—Dr. Beverley R. Tucker, Richmond, has lately published "The Lost Lenore," a one act play dealing with the life of Edgar Allan Poe.——Dr. Stuart McGuire, Richmond, was master of ceremonies at the dedication of the new Richmond Stadium, Armistice day.

Society News.—Dr. David C. Wilson, University, addressed the Piedmont Medical Society, Dec. 11, 1929, on "Diagnosis, Pathology and Treatment of Epidemic Encephalitis," and Dr. Kenneth F. Maxcy, Washington, D. C., on tularemia. The next semiannual meeting of the society will be at Madison the last Friday in May.—— The southern section of the American Laryngological, Rhinological and Otological Society will meet at Roanoke, January 18.

Examination of Preschool Children.—The bureau of child health of the Virginia State Department of Health has endeavored to perfect a plan whereby preschool children can be given health examinations and the treatment needed to put them in better physical condition. Conferences have been held with committees of the Medical Society of Virginia, the Virginia Pediatric Society and school superintendents appointed to work with the bureau of child health. It is agreed that the examinations and treatment should be in the hands of the family physician rather than in those of clinicians employed by the state. Last year 276 clinics were held by family physicians, and 1,650 children were examined; 1,532 of these children were found to have physical defects. Last year's work demonstrated the need for a more definite plan, and to further such plan, a joint meeting of the committees mentioned was held, Nov. 26, 1929. The following resolutions were adopted at this meeting:

Resolved, That the responsibility of the health examinations of the preschool children be placed in the hands of the division superintendent of schools of each county and the local board of health, and that they cooperate with the local doctors.

Resolved, That we endorse the report of the child welfare committee of the Medical Society of Virginia, and that we recommend a fee to be charged for the health examination of the preschool child such as the doctors and superintendents see fit to recommend.

WISCONSIN

County Society Expands Program.—The new program of the Medical Society of Milwaukee County is one of expansion. The society's bulletin for December is the first number of a much improved and enlarged publication. A full-time lay secretary has been employed. The society is sponsoring the "Physician's Service Bureau," a telephone exchange which acts as a link between the physicians and the public, and an educational program is being planned which will bring the physicians in closer touch with the public.

GENERAL

Four Lepers Released from Carville.—As a result of the discharge of four men from the federal leprosarium at Carville, La., the number of cures of leprosy is brought to sixty, according to a recent report in the Boston *Transcript*. Two of the four men came from Texas, one from California and one from Massachusetts.

Physical Qualifications of West Point Candidates.—The surgeon general of the U. S. Army reports that 1,012 candidates for admission to West Point Military Academy were examined during 1928, and that 627, or 62 per cent, were found physically disqualified for acceptance. One hundred and fifty-eight, or 15.6 per cent, were recommended for acceptance with minor physical defects, and 227, or 22.43 per cent, were rejected on physical grounds.

International Congress for Sex Research.—The Second International Congress for Sex Research will be held in the headquarters building of the British Medical Association, Tavistock Square, London, August 3-9, under the presidency of Prof. F. A. E. Crew, the University, West Mains Road, Edinburgh, to whom those interested are requested to write. An American subcommittee has been formed in order to secure a maximum participation by workers in this country. The members, representing biology, medicine, psychology, sociology and anthropology, are Oscar Riddle, Ph.D., chairman; Dr. Abraham A. Brill; Calvin P. Stone, Ph.D.; William F. Ogburn, Ph.D., and Clark Wissler, Ph.D. It is desirable that American investigators be adequately represented, especially since few from this country attended the First International Congress for Sex Research.

Government Seizes Canned Tomatoes.—Federal officers have seized 5,614 cases of canned tomatoes at various points in

Alabama, and in Baltimore and Washington, D. C. Seizure was made on the ground that the tomatoes had been adulterated with water at the time of canning. The Food, Drug, and Insecticide Administration of the department of agriculture found that these tomatoes (twenty-four cans to the case) were packed in, and shipped from, factories in northern Virginia last summer and fall. Reputable canners do not consider it necessary to add water to tomatoes in the canning process, and they, as well as the government, regard the sale of water at the price of canned tomatoes as a cheat and an imposition on the consumer. These tomatoes are being held pending action on the part of the canners. Their distribution in trade will be permitted only under conditions which will prevent fraud and deception.

Program for Congress on Mental Hygiene.—The preliminary program of the First International Congress on Mental Hygiene, which will be held in Washington, D. C., May 5-10, 1930, has been released. It has been arranged to provide a maximum of discussion and a minimum of the formal reading of papers. At morning session, papers will be limited to ten minutes in statement; discussion will follow. The afternoons will be given over to committee meetings, prepared discussions and recreation. The advisory committee on arranging the program comprises persons in twenty-eight different countries, and scientists representing many branches related to mental hygiene. The chairman of the program committee is Dr. Frankwood E. Williams, New York. The chairman of the committee on organization is Dr. Arthur H. Ruggles, superintendent, Butler Hospital, Providence, R. I. The American Psychiatric Association and the American Association for the Study of the Feebleminded will hold their annual meeting in Washington at the time of the international congress.

Appropriations of Rosenwald Fund.—The Julius Rosenwald Fund, Chicago, appropriated about $4,000,000 of its capital assets during 1929 for philanthropic purposes. The fund appropriated $250,000 to the University of Chicago Clinics for the medical services; $150,000 to the Massachusetts General Hospital, Boston, toward a pavilion for patients of moderate means; $40,000 to the Committee on the Cost of Medical Care; $250,000 to Howard University, Washington, D. C., for biologic research and additions to the plant; $50,000 for fellowships for advanced study by negroes, chiefly to train physicians, nurses and teachers; $62,500 to the Canadian Mental Hygiene Committee for studies of child growth in Toronto, and appropriations for negro hospitals and colored public health nurses in sixteen counties of five of the Southern states. Mr. Rosenwald has further given funds to assist in establishing 4,729 schools for negroes in the South, which are spread over fourteen states and 818 counties. Two hundred thousand dollars was appropriated for demonstrations of county library service in the Southern states; $85,000 toward a campaign against illiteracy in Louisiana, and a total of $87,500 to the Social Science Research Council and the new school of social science research in New York.

Another Prize for Scientific Research.—An annual prize of $10,000 and a medal has been established by *Popular Science Monthly* to be awarded beginning this fall under the auspices of the Popular Science Institute to the American citizen who, during the preceding year, has been responsible for the scientific achievement of greatest potential value to the world. The first prize will be conferred in September by a committee of twenty-four scientists representing institutions throughout the United States, including the Smithsonian Institution, the U. S. Bureau of Standards, the Carnegie Institution, National Research Council, California Institute of Technology, American Museum of Natural History, Massachusetts Institute of Technology, General Electric Company and others. The only member belonging to the medical profession appears to be Dr. Samuel A. Brown, dean and professor of therapeutics, New York University and Bellevue Hospital Medical College. All scientific workers, professional and amateur, academic and commercial, are eligible for the prize. The award was created to stimulate research especially along practical lines.

Negro Colleges Classified.—Announcement is made by Arthur J. Klein, Ph.D., of the bureau of education, Washington, D. C., that a classification of negro colleges has been made by a special committee acting under the auspices of the Council on Medical Education and Hospitals of the American Medical Association. Mr. Klein states that the increase in class I negro premedical schools from five to twenty-five means that there are now twenty additional opportunities for negro premedical education in the United States. The classifications include three types of colleges as follows: Class I includes those qualified to offer two years of premedical training of first grade order; class II includes fifteen institutions, or an increase of eight, and class III includes a large number which fall short of meeting the requirements and should undergo a complete reorganization to be rated in class I. The classification was made possible through the cooperation of a special committee, consisting of Dr. G. B. Woods, dean, College of Liberal Arts and professor of English, American University, Washington, D. C.; Charles C. McCracken, Ph.D., Ohio State University, Columbus, and Louis R. Wilson, Ph.D., University of North Carolina, Chapel Hill. There are said to be now 3,500 negro physicians and surgeons in the United States, or approximately one colored physician to every 3,343 negroes.

Medical Bills in Congress.—S. 2676, introduced by Senator Heflin, Alabama, proposes to establish a board of review at St. Elizabeth's Hospital, District of Columbia, to be composed of the superintendent of the hospital and every physician affiliated with it. S. 2817, introduced by Senator Sheppard, Texas, proposes to amend an act entitled "An Act to recognize the high public service rendered by Major Walter Reed and those associated with him in the discovery of the cause and means of transmission of yellow fever," approved Feb. 28, 1929, by including Roger P. Ames among those honored by the act. H. R. 5678, introduced by Representative Morton D. Hull, Illinois, proposes to amend the act referred to in the preceding bill (S. 2817), by including Gustaf E. Lambert among those honored by the act. H. R. 6565, introduced by Representative Clark, Maryland, proposes to provide that acting assistant surgeons of the United States Navy who, on the date of the passage of the bill, have reached the age of 64 years, shall be placed on the retired list of the navy with pay at the rate of three fourths of their active-duty pay. H. R. 6799, introduced by Representative Mead, New York, proposes to provide that any ex-service man having an active tuberculous disease, and entitled to hospitalization, may elect to take a maintenance allowance, in lieu of hospitalization, of $4.75 per diem in addition to any compensation now allowable. H. R. 7633, introduced by Representative Martin, Massachusetts, proposes to authorize an appropriation of $1,500,000 to establish a veterans' hospital in southeastern Massachusetts or in Rhode Island. H. R. 7702, introduced by Representative Almon, Alabama, proposes to amend the World War Veterans' Act to provide that if an ex-service man has prior to Jan. 1, 1930, an active tuberculous diseases, developing a 10 per cent degree of disability or more, the disability shall be presumed of service origin. H. R. 7755, introduced by Representative McSwain, South Carolina, proposes to authorize an appropriation of $450,000 to construct a hospital building at Hot Springs, Ark. H. R. 7764, introduced by Representative Ramspeck, Georgia, proposes to authorize an appropriation of $2,000,000 to establish a branch home of the National Home for Disabled Volunteer Soldiers in one of the southeastern states.

CANADA

Montreal Creates Board of Health.—Following a survey of health conditions in the city of Montreal, a board of health has been created consisting of nine members, to act in an advisory capacity only, two to be appointed by McGill University and two by the University of Montreal. The other five appointed by the city will include the director of the health department, three aldermen and the chairman of the city executive committee.

Royal College of Physicians and Surgeons of Canada.—The act to incorporate the Royal College of Physicians and Surgeons of Canada received the royal assent, June 14, 1929. The inaugural meeting, convened by the general secretary of the Canadian Medical Association, in Ottawa, Nov. 29, 1929, was attended by sixty of the leading physicians of Canada. Toronto was chosen as headquarters of the college.

LATIN AMERICA

Hospital News.—Havana, Cuba, has appropriated $60,000 as a contribution to the government's plan for enlarging La Esperanza, a sanatorium for tuberculous patients; the sum will be used to build cottages.——Construction will soon begin on ten pavilions for the treatment of tuberculosis, eight polyclinics and 200 medical aid stations in Chile. The stations will be erected in rural districts where no hospitals are available, it is reported.

Society News.—The First Reunion of Surgeons of Cuba was held in Hanava, Cuba, Dec. 16-20, 1929, under the presidency of Dr. Francisco María Fernández, secretary of public health and welfare, and under the auspices of the National Society of Surgery. Dr. José E. López Silvero, secretary of state, spoke on "Progresses of Public Help in Cuba"; Dr. Angel Arturo Aballí, professor of pediatrics, University of Havana, "Assistance of Children in Hospitals," and Dr. Pedro Castillo, professor of clinical medicine, University of Havana, "Hospitalization of the Tuberculous Patient." Dr. Fernández also addressed the meeting.

Government Services

Army Personals

Major Daniel Franklin is assigned to duty at William Beaumont General Hospital, El Paso, Texas, effective on completion of his tour of foreign service.——Major Charles E. MacDonald, for the convenience of the government, will proceed to his home and await retirement.——Capt. Arthur M. Whaley will sail from New York about March 28 for the Panama Canal Department, from which place he will proceed to Balboa Heights, Canal Zone, for duty.——Capt. William B. Wilson will sail about March 28 for duty in the Hawaiian Department.——Capt. Ira F. Peak will sail about January 16 for duty as flight surgeon in the Philippine Department.——Col. Christopher C. Collins is designated as assistant commandant, Army Medical Schools, Army Medical Center, Washington, D. C.——Capt. James O. Gillespie will sail from San Francisco, about April 19, for the Hawaiian Department for duty.

U. S. Public Health Service

Surg. Paul Preble has been assigned to duty at Balboa Heights, Canal Zone; Surg. Howard F. Smith, relieved from duty at Palermo, Italy, on or about January 1, and directed to proceed to Rotterdam, Holland, from which point to proceed to Monrovia, Liberia, for temporary duty as chief medical adviser to the Liberian government, prior to assignment to duty at Ellis Island, N. Y.; Surg. William C. Billings has been promoted to senior surgeon in the regular corps, effective Nov. 1, 1929; Surg. Carl Ramus is relieved from duty at Calais, Me., and placed in charge of immigration work at East Boston, Mass. Milton V. Veldee has been promoted and commissioned as surgeon in the regular corps, to rank as such from Oct. 10, 1929.

Change of Station in the Navy

Lieut. Comdr. Thomas H. Taber from the navy hospital, Canacao, P. I., to Yangtze Patrol, China; Lieut. Comdr. Gilbert H. Mankin's resignation has been accepted, effective January 29; Capt. Granville L. Angeny has been transferred to the navy yard, Boston; Capt. Ulysses R. Webb to the navy hospital, Puget Sound, Wash.; Lieut. Jonathan E. Henry to duty in attendance on a course of instruction at Brady Urological Institute, Baltimore, and Lieut. Harold L. Weaver to the Asiatic station, about January 9; Rear Admiral Norman J. Blackwood has been relieved of active duty and ordered home; Lieut. French R. Moore's resignation has been accepted, effective January 23; Lieut. Comdr. Rolland R. Gasser to duty with the U. S. S. *Northampton*, preparatory to commissioning the ship; Lieut. Comdr. Bertram Groesbeck, Jr., to duty with the U. S. S. *Houston*, preparatory to commissioning the ship; Lieut. Dewey H. Walden's resignation became effective Dec. 20, 1929; Lieut. Comdr. Charles S. Stephenson to the navy hospital, New York, about January 18; Lieut. Comdr. Lewis G. Jordan from the U. S. S. *Lexington* to the navy hospital, Norfolk, Va.; Lieut. Clifton A. Young was ordered to duty involving flying at Pensacola, Fla., effective about December 1; Lieut. Frank K. Soukup has been transferred to duty with the Public Health Service of Haiti; Lieut. Comdr. Philip S. Sullivan has been transferred from the naval station, Cavite, P. I., to the United States; Lieuts. David A. Heffernan's and Chris C. Mansell's resignations have been accepted, effective Dec. 31, 1929; Lieut. Comdr. Heber Butts to the navy recruiting station, Nashville, Tenn.; Lieut. Francis P. Field to the receiving ship, New York, about January 12; Capt. Lewis H. Wheeler was relieved from active duty about Dec. 21, 1929, and ordered home; Lieut. Comdr. Aubrey M. Larsen to the navy dispensary, San Pedro, Calif.; Lieuts. Alfred L. Gaither and Clifford W. Moore to provisional marine battalion; Lieut. Frederick R. Haselton has been ordered to duty involving flying, U. S. S. *Saratoga;* Lieut. Stuart J. Trowbridge has been ordered to duty involving flying, navy air station, Pensacola, Fla.; Lieut. Arthur H. Crosbie's resignation has been accepted, effective Dec. 31, 1929; Lieut. Ralph C. Boren's resignation has been canceled; he is to continue duty at the navy hospital, San Diego, Calif.; Lieut. George W. Wilson has been transferred from the receiving ship, San Francisco, to the navy air station, Lakehurst, N. J.; Lieuts. James J. V. Cammisa and Harold Simons have been transferred to the navy medical school, Washington, D. C.; Lieut. Clark W. Virtue has been transferred to the U. S. S. *Lexington*, effective about January 15; Lieut. Newman K. Bear's resignation has been accepted, effective Dec. 31, 1929.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Dec. 14, 1929.

Evolution of Human Races, Past and Present

In a lecture at a meeting of the Anthropological Society, Sir Arthur Keith discussed the evolution of human races.

TROUBLE RESULTING FROM DIVISION INTO RACES

The differentiation of mankind into races is a continuous source of trouble. Peace is disturbed by the friction engendered when race meets race. In Palestine, the Jew and the Arab cannot live in harmony. In South Africa, Boer and Briton, who have everything to gain by working together, find themselves thrust apart by some impulse stronger than their individual wills. If men in all parts of the world had been cast in the same mold and if nature had dressed them in the same racial livery, the establishment of harmonious settlements in East Africa would have been easy. As it is, the problem of planting in the same country peoples wearing three different liveries—white, brown and black—is taxing the resources of our statesmen to the utmost. The Balkans and India constantly suffer from disorders due to nationalism. In North America there are the problems of the Red Indian, the negro and the Asiatic races. Racial divergence disturbs not only social and political peace but also the human conscience, for when men of one race occupy the territory of another they find it impossible to frame laws that give equal justice to all. If men had all been of one race and dressed in one common fleshy uniform they would have been free from these ever present racial difficulties and from the most potent cause of war. Why has nature introduced into human life this ever disturbing factor?

ORGANIZATION OF MAN'S ADVANCEMENT ON A RACIAL BASIS

From remote times, to be reckoned only by the geologist's calendar, the continents of the old world have been inhabited. The further back one goes, the greater does one find the degree of racial differentiation. These ancient types were more pronounced in their characteristics and apparently more restricted in their distribution. So far less than a dozen ancient types have been discovered; there were probably hundreds. This organization of mankind into diverse types was nature's way of evolving higher types. The word "higher" here merely indicates that the races which replaced others, whether by evolution or by substitution, were the better adapted to the time and locality. They need not have been larger brained. Throughout the last geological period nature had on foot hundreds of experiments in human production and so evolved the races in possession of the world at the dawn of the historical period.

THE RACIAL TYPES OF TODAY

The dawn of the historical period found four vast and successful experiments in race production—the Mongolian type north of the Himalayas (represented today by the natives of Tibet, China and Japan, with variants extending across the world from the North Cape in Europe to Cape Horn in South America); the brown type south of the Himalayas (now broken up into a great but uncertain number of races); the black type in Africa south of the Sahara (of which the negro of the Congo is now the most differentiated type); and the white type from Afghanistan and the Arabian peninsula in the east to Ireland and the Shetlands in the west. In the white type innumerable racial differentiations have occurred and no doubt there was immense racial disturbance before the historian arrived on the scene.

SOME FACTORS IN THE EVOLUTION OF RACES

For the concentration of racial types in particular areas, early man must have been subjected to strong influences which bound him to his homeland, and this must have been kept intact over long periods. Only thus could a racial type be preserved and advanced. The first and chief influence was the emotional reaction known today as patriotism, but this would not have prevented man from extending his territory at the expense of his neighbor. Secondly, for coordinate action the members of the primitive community must have been endowed with "herd instincts" which would cause them to act together in the face of danger from within or without. Susceptibility to public opinion is a survival of this ancient factor in the evolution of races. Thirdly, early man had an instinctive preference for those who wore his own livery of flesh and spoke and acted as he did. The importance of patriotism in nature's machinery of evolution is shown by the plans of that acute thinker Mr. H. G. Wells for universal peace. He realizes that the first thing to be done is to eradicate the spirit of patriotism as well as the old instincts of recognition of kind—race prejudice. A boy must not be allowed to think, as he is apt to do, that his country is the best.

TWO PHASES OF RACE EVOLUTION—PAST AND PRESENT

Toward the end of the period of paleolithic culture, 10,000 or more years ago, a change was introduced into human life which now threatens nature's scheme of evolution. Man discovered how to sow and reap, probably in southwestern Asia. The discovery brought about a revolution, for the command of a steady food supply permitted peoples who had been hunters to build villages, which in time became cities and city states. With the rise of cities came commerce, and the old tribal territories, the cradles of evolution, were broken down. Then came the most momentous change of all. A tribal people in considering any change would ask merely, Will it enhance the prestige, unity and freedom of our tribe? but with the rise of the city the paramount question became, Will the change be good for business? The outlook became economic. Tribal boundaries were found to be bad for trade and were broken down. Then came empire building: a prosperous city state became dominant over surrounding states and united a conglomeration of peoples, many still in the tribal state.

THE NATION AS A RACE IN FORMATION

Huxley thought that a nation was an artificial production and this view is still held by most anthropologists. He said that the only scientific method of studying races was the zoological. Peoples who could be distinguished by physical markings were races. Applying this method, he concluded that the four nationalities of Britain were compounded of three races, each nationality in different proportions. Huxley's method would have answered admirably 8,000 years ago but did not in the nineteenth century. He went wrong in believing that when Europeans of different racial stocks became planted in the same land they became permanently deracialized. It did not occur to him that deeply implanted in them there remained the instincts and tendencies of race building. When a land is planted with a mixture of old races, a new effort at race building begins sooner or later, just as a wren's nesting instincts are reawakened as soon as the first nest is destroyed. So strange peoples who settle in a foreign land begin at the bottom of the racial ladder and work toward first complete racial fusion and then further differentiation. A nation, be it ever so young, is an incipient race. Politicians have been wiser than anthropologists. For them variations in the shape of heads have no terrors, but they recognize the potency of national spirit. Let this be once engendered in a people, let it continue over many generations, and a race answering Huxley's definition will appear. A nation always represents an attempt to become a race; nation and race are but different degrees of the same evolutionary movement.

Government Road Traffic Bill

In 1928 the road accidents in Great Britain reached the appalling daily average of sixteen people killed and 450 injured. The number of automobiles is still constantly increasing and, in the absence of effective, preventive measures, this roll of the killed and injured must rise. The government has therefore introduced a road traffic bill, which has received the approval of motorist organizations. It is based on work already done by the royal commission on transport. The principal changes in the law are as follows: The speed limit is to be abolished for motor cars and motorcycles. The speed limit for heavy motor cars with pneumatic tires, such as motor coaches and omnibuses, is to be 30 miles an hour. For reckless or dangerous driving the penalty is increased to a maximum of three months imprisonment or a fine of $250 for the first offense, and three months imprisonment and a fine of $500 on summary conviction for subsequent offenses. On conviction on indictment, the maximum penalty is six months imprisonment and a fine. On a second offense the motorist's license is to be withdrawn unless there are special reasons to the contrary. A new offense, "careless driving," is created in cases in which due care and attention or reasonable consideration for other road users is not shown. The minimum age for a license to drive a motorcycle is raised from 14 to 16. The age for drivers of motor cars remains at 17, but no one under 21 may drive a heavy motor car, motor tractor or locomotive. There is no definite test for efficiency of drivers, but every applicant for a driving license must make a declaration of physical fitness. No driver of a heavy motor vehicle may remain on duty for more than five hours at a stretch or for more than ten hours in all in the twenty-four. Pillion riding on a motorcycle is restricted to one passenger, who must sit astride. The owner or driver of a car must be covered against any legal claim that may be made against him by a third party in respect to personal injury. This cover may take the form of a policy of insurance or of a bond or similar security of a company or person to make good any default in satisfying claims. The government anticipates that the proposal to abolish the speed limit may create opposition, but it holds that when the public, the police and motorists all know that the existing law is nonsense and nobody is observing the present speed limit, it is time that the law was changed.

Carbon Monoxide Poisoning in an Automobile

A closed automobile was found in a pool of water on the road with two men dead inside and the driver in a helpless condition. As the men had been drinking beer he was charged with drunkenness while in charge of the car. At the inquest there was a conflict of medical evidence. The police surgeon bore out the charge of drunkenness but another physician pointed out the peculiar pinkness of the blood and said that death was due to carbon monoxide poisoning. The opinion of the former prevailed. Fortunately for the driver, J. S. Haldane and Leonard Hill read the report of the inquest and, seeing that a miscarriage of justice was likely to arise, attended the trial of the driver and gave evidence that his condition was due to carbon monoxide poisoning. He was therefore acquitted. The men who died were strong and healthy and had drunk only a pint or two of beer. They were found in the car with the windows shut and their feet wet. They had been there for only a quarter of an hour. Apart from carbon monoxide poisoning there was nothing to explain their deaths. The driver, though severely poisoned, evidently escaped death because the windows beside him were open. Commenting on the occurrence in the *Times*, Hill points out that Dr. Argyll Campbell has found that injection of alcohol into the veins of rabbits lowers the oxygen tension in the tissue spaces by a third. The evidence was that the men had taken a couple of pints of beer but were sober just before they drove into some water on the road where

V 9
193

the car was found. As the exhaust was under water and there was a leak in the exhaust pipe, the fumes escaped into the car. With the engine racing, Hill estimates that there may have been 15 per cent of carbon monoxide in the fumes. The evidence of the police shows that knowledge of the danger of the exhaust fumes of cars and of the fact that poisoning by these produces the same effect as alcohol has not been spread widely enough.

Death of a Physician from His First Attack of Angina Pectoris

Dr. Laurence Ball, physician to the Queen's Hospital and to the Children's Hospital, Birmingham, died in his office from an attack of angina pectoris, which was his first and only manifestation of cardiac disease. He was only 45. He was a leading physician and a successful teacher who attracted crowded classes.

PARIS

(From Our Regular Correspondent)

Dec. 4, 1929.

The Price of Radium

Professor Regaud, director of the Institut Curie, has seen fit to rectify some statements made recently before the Académie des sciences. It is true that radium is still the most costly metal in the world; it is also true that the factory at Oolen, Belgium, which holds the monopoly of its manufacture, has decided to restrict its production; but if one takes account of the lowered value of the franc, the price of radium has, in reality, decreased since the war. Furthermore, it is only just to mention that the Belgian factory at Oolen loans gratuitously its radium to cancer institutes. It has given a gram to the French ministry of health, for the use of the cancer institutes, and has lent, in addition, 5 Gm. for five years, without compensation, to the Institut Curie. The interest on the last mentioned loan is equal to 400,000 francs a year. Then, again, the subsidy of 1,500,000 francs and the plot of ground given to Madame Curie to enlarge her laboratory were not, as was stated, for the purpose of permitting her to manufacture radium herself but to afford her an opportunity to make researches on other rare radioactive metals that may be found in the minerals.

Smallpox and Smallpox Vaccination in France and Its Colonies

The annual report on smallpox, presented to the Academy of Medicine by Dr. Camus, head of the vaccine service, announces the reduction of smallpox incidence in France, last year, to one or two cases only, in eleven departments, which is the fewest number of cases hitherto observed. The law pertaining to vaccination has been enforced with greater rigor in the departments in which the departmental inspectors paid serious attention to the matter, which unfortunately did not include all departments. The cases observed were always isolated, partly, no doubt, because they developed in a region that was to a large extent immunized. This remarkable result is due, according to Dr. Camus, less to the greater zeal with which the vaccination ordinance was enforced than to the organization of better protection against the introduction of smallpox into France by way of its frontiers, and particularly to the greater strictness displayed toward the natives of Algeria, who have been the usual source of infection from without, observed since the war. In response to the urgings of the Academy of Medicine, the governor general of Algeria has required all Algerian workmen to be vaccinated before embarking for France, and, in like manner, a short quarantine period has been imposed on them in the Algerian ports of embarkation, in order that their linen and their outer garments might be disinfected. Therein lies doubtless the true reason for the diminution of smallpox in France. Likewise, in the French colonies there has been a great improvement. But much still remains to be done. Smallpox has been energetically combated everywhere by means of vaccination. In some countries it counts still many victims; but everywhere, even in the least accessible regions and in the warmest countries, vaccination with the dry vaccine causes smallpox to disappear. The report states that in 1927 there was a total of 3,300 cases of smallpox, with 560 deaths, in all the French colonies of Africa, taken together, and that in those regions 2,278,000 vaccinations were performed. In the French colonies of the Indian Ocean (Madagascar, Réunion, French Establishments in India, and French Somali Coast), about 966,000 vaccinations were performed. Smallpox has become rare in Madagascar, but the incidence is still high in the French Establishments in India. In the region of Pondicherry alone, which is the most sorely afflicted, only 525 deaths from smallpox were recorded, as compared with 1,000 and sometimes 2,000 in previous years. In Indo-China, about 1,400 cases of smallpox were reported, and the vaccination centers of Hanoi and of Saigon performed, respectively, 5,000,000 and 3,400,000 vaccinations. In America (Martinique, Guadelupe and Guiana) about 9,200 vaccinations were performed. At the French consular medical posts of China, where smallpox is not especially common, a few thousand vaccinations were performed; but the vaccinators still encounter great difficulties here, since they have to contend with superstition and the influence of sorcerers. In Morocco, the number of cases of smallpox diminished considerably in 1928 (245 cases as compared with 1,200 cases in 1927). In 1928, 467,000 vaccinations were performed. Tunisia, which, thanks to the action of Mr. Manceron, the resident general, will begin next year to render an annual report on the incidence of smallpox and the number of vaccinations performed, is carrying out vaccination actively since it became compulsory through the decree of May 5, 1922. The complete cycle of vaccinations, which is to include the twenty administrative districts of Tunisia, is not yet completed; but already a large number of vaccinations have been performed and the retrogression of smallpox is now evident. The vaccination center of the Institut Pasteur de Tunis supplies everything that is needed in connection with vaccination.

The Controversy over the Drafted Law Pertaining to Social Insurance

The proposed law pertaining to social insurance continues to be the center of interest in all medical organizations. The law, if approved by the two chambers of parliament, will go into effect, Feb. 5, 1930. Mr. Loucheur, minister of labor and of public health, has entered into formal engagements on the subject with the socialist party. He has already secured numerous options on parcels of real estate and on equipment, including typewriters and adding machines, and has appointed tentatively many clerks at large salaries in view of the approaching date on which he anticipates that the law will go into effect. Nevertheless, protests are heard in every direction, and not only on the part of physicians. The mutual benefit associations, which are old and prosperous and which render great service throughout France, protest at being thus deprived of their usefulness, especially since they cause no added burden to the budget. They have, too, considerable support in the senate. The agriculturists, likewise a powerful contingent, have refused to accept the law, and the minister has endeavored to pacify them by reducing the portion to be contributed by them from 10 per cent to 2 per cent. Thereupon, commercial and industrial interests, which feel equally the weight of the threatened burden, have demanded the same preferential treatment accorded the agriculturists. The medical syndicates, observing that the opposition to the law is gaining ground, have addressed a circular letter to all the members of parliament, in which they endeavor to show, through references to other countries in which social insurance is in force, that the system is bound to give rise to endless frauds, thereby lowering the moral character of the insured and of the physicians themselves, producing habits of laziness, and exerting an enormous influence in raising the cost of living. Mr. Paul Strauss, senator and former minister of health, who is a *membre libre* of the Academy of Medicine,

has sought to defend the law before that body. Strauss endeavored to prove, in opposition to the tone of a recent communication from Professors Merklen and Wolf of Strasbourg, that the social insurance system had been beneficial to Germany. He stated that, of 34,500 practitioners, 29,400 cooperate in the application of the law, and that, at their medical congresses, they do not cease to support the system of compulsory insurance. Strauss cited statistics of the health section of the League of Nations and of the International Bureau of Labor on the diminution of mortality in Germany. Before enactment of the first law pertaining to social insurance, forty-three years ago, the general mortality was 26 per thousand of population. In France, at the time, it was only 22.9 per thousand. In 1927, the general mortality of Germany had dropped below that of France. According to Mr. Strauss, this result is attributable to social insurance. In his response, Professor Weiss denied the truth of these statements. Weiss came expressly from Strasbourg, where he is dean of the Faculté de médecine, to oppose the passage of the bill now pending. Social insurance is in force in Alsace, having been introduced during the occupation of that region by Germany, so that he is familiar with the results of the system there. He cited statistics that give a different aspect to the situation. He referred first to the infant mortality figures. In France, the mortality for children under 1 year of age is 8.9 per cent and in Germany 9.7 per cent. Social insurance has not brought any improvement—quite the contrary. Secondly, Mr. Weiss cited the tuberculosis mortality, which is steadily declining throughout the world. The lowest mortality rates for tuberculosis are reported from Denmark and the United States (9.1 and 8.66, respectively, per 10,000 inhabitants, in 1926). Neither of these countries has compulsory insurance. One must not give a social régime credit for what is due solely to scientific progress. Finally, the most suggestive statistics supplied by Professor Weiss was the control, carried out by the Faculté de médecine de Strasbourg, of the patients insured in the Alsatian *krankenkassen*. Between 1924 and 1928, of 8,157 patients controlled, 5,840, or 71.5 per cent, were cynical cheats. A second inquiry instituted in Strasbourg in 1927 revealed more than 63 per cent of defrauders. A regular traffic with physicians' prescriptions is carried on. The insured ask the pharmacist to give them eau de Cologne in place of filling a prescription. Mr. Weiss concludes, therefore, that the system proposed for France will compromise the public health and lower the morality of the medical profession. The discussion of the bill is not yet closed; but everything seems to indicate that the intervention of Mr. Paul Strauss will have no other result than to induce the academy to draw up a resolution opposing the bill.

Desensitization Treatment in Eczemas

The Société médicale des hôpitaux de Paris held recently an important discussion on desensitization treatment in eczemas, which is an intricate subject and one on which opinions are exceedingly divergent. Mr. Jansion, whose ideas are regarded here as somewhat revolutionary, considers all eczemas as sensitization reactions for some substance, which it is the physician's duty to discover in each case and which acts through the mediation of the neurovegetative system. Their divergent forms are determined by the reaction peculiar to the organic terrain and by the nature of the antigen. According to his opinion, the treatment should be governed above all by these principles, while taking account, at the same time, of the American antiallergic methods. In recent cases in young persons, when the antigen is known, specific mithridatization is indicated. That is the case in the eczema of infants, which are rapidly desensitized by means of injections of milk—human milk or animal milk, depending on the mode of feeding. The same is true of occupational dermatitis of known origin. In eczemas regarded as of internal and dyscrasic origin, albumins that are found more or less disintegrated in the urine may be incriminated; the antigen should be looked for in these and auto-urotherapy should be applied. At the same time, neurovegetative desensitization should be instituted by the well known methods. On the other hand, specific vaccines are indicated in eczemas caused by parasites—by various types of pyococcus or by mycoses. The parakeratosic types are amenable to chemotherapeutic treatment. The so-called solar eczemas, which are actually due to light, require luminodesensitization by means of resorcinol, pyrocatechin and xylene. The exposition of Mr. Jansion aroused a lively discussion among the members of the society. Mr. Pasteur-Valéry-Radot remarked that, while it is true that many eczemas are of anaphylactic origin, others are certainly not of such origin. He emphasized, furthermore, the possible dangers of desensitization by the subcutaneous route, which exposes the patient to serious crises, whereas cutidesensitization has no drawbacks. Mr. Flandin affirmed that the latter method is not always harmless. Mr. Paraf had observed grave accidents following the injection of 0.001 cc. of horse serum into a subject sensitive to emanations of the horse. Mr. Tzanck held that desensitization, though not specific, such as autohemotherapy, is associated with certain risks. In his opinion, these methods are not so certain in their effects as to justify one in neglecting local treatments. That was likewise the view of Dr. Milian, chief physician of the Hôpital St. Louis, who made many reservations to the ideas of Mr. Jansion.

ITALY

(From Our Regular Correspondent)

Nov. 20, 1929.

Congress of Internal Medicine

The Società italiana di medicina interna held its thirty-first congress in Genoa, under the chairmanship of Prof. Edoardo Maragliano, senator.

HEMOLYTIC SPLENOMEGALIA

Prof. Ferdinando Micheli, director of the Clinica medica in Turin, presented the official paper on the first topic, "Hemolytic Splenomegalia." The speaker defined hemolytic splenomegalia (or, to be more accurate, splenomegalic hemolytic anemia) as any form of splenomegalia in which the icterus and the anemia that generally accompany the splenic tumor are the consequences of an increased destruction of blood corpuscles, whatever may be the cause of the pathologic process. A distinction must be made between primary hemolytic splenomegalia (in which the etiologic factors are not recognizable, or in which only a hereditary constitutional endogenous factor can be incriminated) and symptomatic hemolytic splenomegalia. The diagnosis is based on clinical and hematologic observations, chief among which are the determination of the blood corpuscle count, anisocytosis of the red blood corpuscles, the determination of their osmotic resistance and the study of hemoglobin exchange. The speaker reviewed the principal primary forms. Among these is constitutional hemolytic splenomegalia, or hemolytic icterus of the Minkowski-Chauffard type, which constitutes the prototype of the disorder. Recent studies have shown that there is transmitted, in this form, the tendency to the disease, which may also remain latent for a long time. In this form may develop, according to Professor Micheli, so-called tuberculous hemolytic icterus and syphilitic hemolytic icterus; likewise, Adler's and also Banti's hemolytic anemic splenomegalia. The symptomatology of the disease is well known and thus also the treatment, for, in the great majority of cases, splenectomy brings about a lasting clinical recovery from the disease. The pathogenic interpretation is, however, still a controversial question. The speaker does not regard it as likely that the constitutional anomalous condition of the erythrocytes is the primary and fundamental factor in the genesis of the morbid symptoms. These seem rather the expression of coordinate changes in the hemolytopoietic system.

V 9
193

Hemolytic anemia with falciform cells has been observed only in the negroes and mulattoes of America and Africa but is listed in the classification.

Hemolytic splenomegalia with ovalocytosis and poikilocytosis is a rare type described in a case by Hijmans van den Bergh and in a second case in the Clinica medica of Turin. There was a high percentage of elliptic red corpuscles, or ovalocytosis (55 per cent), associated with poikilocytosis in the proportion of from 25 to 30 per cent.

A certain group of individuals presents clinically hemolytic splenomegalia with hemoglobinuria and hemosiderinuria of the Marchiafava type. This form develops in young subjects without history of syphilis or malaria, and presents an icteroanemia of the hemolytic type. It presents characteristic hemoglobinuric attacks, and in the intervals between these there may be hemosiderinuria, as Marchiafava noted in the two cases observed by him. The etiology and the pathogenesis are unknown; splenectomy does not appear to be decidedly useful.

Hemolytic splenomegalia associated with pernicious anemia of the Strümpell type (which Pende and Micheli distinguish from pernicious anemia) is, however, plainly and permanently benefited by splenectomy. Micheli effects a cure by means of liver treatment.

With the symptomatic hemolytic splenomegalias must be classed also the fibrous and the cirrhotic types (especially the syphilitic) and the infective types (malarial, the type associated with leishmaniosis, and others).

THE MYCOSES OF THE RESPIRATORY APPARATUS

The second topic, "The Mycoses of the Respiratory Apparatus," was divided into two parts, the first of which was discussed by Prof. Giovanni Boeri of Naples and the second by Professor Jacono, also of Naples. Professor Boeri stated that, of the various types of pseudotuberculosis, the most common is mycosis of the respiratory apparatus. The mycoses are often of occupational origin and are favored by contact with grasses and with certain animals. A personal predisposition appears to be based on an arthritic or vagotonic constitution. There are primary mycoses in which the disorder is due exclusively to mycetes, and there are secondary forms in which there is symbiosis and association with pathologic organisms and disorders. The speaker and his pupils have recently studied carefully nineteen cases of mycosis of the respiratory apparatus, seven of which were due to *Monilia*, three to *Cryptococcus* and two to *Nocardia*, which are the mycetes that most commonly, in our region, give rise to disorders of the respiratory apparatus. The clinical syndrome and the physical semeiology are, on the whole, similar to those of the tuberculosis type. If treated in time, pulmonary mycoses may be cured, and it is therefore a grave oversight for the physician not to make the diagnosis in time. The sure diagnosis is reached only in the laboratory, based on the search for and the cultivation of the parasite, and on certain tests, among which the most important is the deviation of complement. The prophylaxis consists in avoiding the dangerous occupational conditions by means of ventilation and the application of hygiene to the industrial surroundings; the use of protective masks, and other hygienic measures. In the treatment, iodine plays a prominent part (potassium iodide from 2 to 4 and up to 10 Gm. a day, orally). The arsenicals also are useful. Vaccinotherapy is being tried; the speaker has had favorable results from an anticryptococcic autovaccine. In the second part of the topic, which comprised the etiology, pathogenesis and immunobiology of the mycotic types of the respiratory apparatus, Professor Jacono described the three cycles in the reproductive process of mycetes and the pathogenic reactions in the organic tissues that correspond to each cycle. Acquired immunity is rare in bronchopulmonary mycosis.

GANGRENE OF THE EXTREMITIES, WITH ESPECIAL REFERENCE TO ENDARTERITIS OBLITERANS

The third topic on the program, "Gangrene of the Extremities, with Especial Reference to Endarteritis Obliterans," was discussed in common with the Società italiana di chirurgia, which held its congress in Genoa at the same time. The medical side was handled by Prof. Guglielmo Scala of Naples. In place of the classification of the various clinical forms based on physiopathologic criteria, the speaker preferred to distinguish: (1) symmetrical gangrene; (2) juvenile gangrene; (3) thromboendarteritis obliterans, or Buerger's disease; (4) intermittent claudication of the Charcot type; (5) arteriosclerotic gangrene; (6) embolic gangrene. Of each of these forms Professor Scala described the peculiar clinical characters, the anatomopathologic changes, the prognosis and the therapy. Following this exposition, he took up certain considerations and conclusions, from which it appeared that the gangrenes of the extremities may assume various syndromes, that they occur chiefly in the male sex, affecting mainly the lower limbs, and that the lesions are unilateral, at least in the first stage.

CHRONIC LESIONS OF THE RESPIRATORY PASSAGES IN RELATION TO THE DEMANDS OF MILITARY LIFE

The fourth topic, "Chronic Lesions of the Respiratory Passages in Relation to the Demands of Military Life," was presented by Lieutenant Colonel De Logu, M.D., of the Ospedale militare in Rome. Availing himself likewise of the abundant material furnished by the departments of the Ospedale del Celio, the speaker examined into the case histories of a large number of military men affected with chronic disorders of the respiratory apparatus, considering them from the standpoint of fitness for military service. There are many pathologic conditions in which the expert must exercise great circumspection before rendering an opinion that may work hardship on the individual or do injustice to the state.

From his studies, the speaker concludes that in cases of progressive pleuritis or bronchitis of long standing it is indispensable, before returning men to their services, to evaluate carefully the time spent in the clinic and the time lost from duty. In the outcomes of thoracic wounds, sometimes the pulmonary functioning is reestablished in an entirely satisfactory manner, but it must be borne in mind that thoracopulmonary wounds and the carriers of projectiles not infrequently present grave insufficiency of respiration. Chronic lesions from war gases diminish, as a rule, the functional capacity of the respiratory apparatus and reduce the fitness for active military service. Persons affected with essential respiratory insufficiency should not be dismissed from the army necessarily, for in many such cases proper breathing exercises will reestablish a functioning sufficient for military service. The speaker would, however, be pleased to see special departments for persons with respiratory insufficiency created, with a view to providing for them the treatment needed.

Any tuberculous manifestation exempts military men from active duty in the army. Of late years, however, tuberculous military men, instead of being returned to their families, have been treated in isolated departments of the military hospitals or at the Sanatorio di Anzio, even when the disease did not result from or during military service. But the present organization is insufficient, and what the army needs at present is a military sanatorium in the high plateau regions.

The Weight Curves of Children at the Seaside

On the occasion of the last Congress of Thalassotherapy, Prof. Giulio Ceresoli of Venice presented a comprehensive study of the weight curves of children at the seaside, giving the results of a long period of research and observations carried on by the speaker and his school. The investigators found that in children who stay a long time at the seaside during the cool

season the weight increases rapidly, is arrested during the warm months, and sometimes even decreases in August. In children who go to the seaside only in summer there is often a temporary increase, which is soon arrested and sometimes is changed into a loss.

The speaker explained these observations by postulating two diverse thalassotherapeutic seasons that characterize the climate of the Italian seashore—namely, the cool or cold season, which is stimulating, and the warm season, which has a sedative and sometimes a depressing effect. Therefore, Professor Ceresoli holds that the summer season is not the best adapted for stimulative seaside treatment.

The speaker called attention also to solar treatment, which nearly always is carried out in an irrational and sometimes an injurious manner. The effects of the climate must be regarded as of equal importance with those of the sun, if not of greater importance. The sun must be considered an heroic remedy and sun treatment must be carefully prescribed in suitable doses. If improperly applied, the sojourn at the seaside may prove harmful instead of beneficial. Indirect heliotherapy, under a tent, is most effective in the vicinity of the sea, where the diffuse light is richest in ultraviolet rays. In a colony under the direction of Dr. Ballarin, the children are not allowed to remain subjected to the direct rays of the sun for more than fifteen minutes a day. They all acquire a deep tan without the least sunburn, and they all present a frank and constant increase in weight. These results should be noted by the directors of colonies, which nowadays often go to extremes in the matter of heliotherapy. The duration of the solar treatment will of course depend on the season of the year and on the solar temperature.

BERLIN

(From Our Regular Correspondent)

Dec. 7, 1929.

Change of Character Following Brain Injuries

In an address before the Berliner Medizinische Gesellschaft, the Frankfort neurologist Professor Goldstein undertook, with reference to change of character caused by brain injuries, to set forth what is understood by health and disease and to show what deductions are to be drawn with reference to a rational therapy. For the past ten years, Goldstein has been studying the sequels of brain injuries, particularly gunshot wounds, and has found that changes in the whole personality are the most important, although the disease symptoms vary somewhat with the site of the injuries. In his investigation, Professor Goldstein tested not only single performances of the injured but also their general behavior. He found that the person with a brain injury will vary greatly in character, being one type or another, depending on whether or not he is able to solve a simple problem put to him. His orientation is excellent, but he can give no information in regard to his orientation. Thus, he does not know the concepts "up" and "down," but in a roundabout way he succeeds in executing the performance and pointing up and down. He cannot go through the motion of drinking out of a glass if there is no water in it. He is unable to write on a blackboard if he stands with the chalk only one centimeter away from it. He can read detached letters only when they are underlined. He can wind a watch, but he cannot, without a watch, go through the motion of winding one. From such facts, Goldstein concludes that these patients with brain injuries can act only in a living situation but are unable to function if asked to give an account of their actions. The patients cannot differentiate between the ego and their entourage, and are unable to conceive of themselves as distinct from their entourage. They have lost something specifically human and take an isolated attitude toward other persons. The result is certain ethical or moral defects, as, for instance, the absence of sympathy. A second group of changes in behavior is observed, depending on whether or not the person with the brain injury is able to solve a certain problem or carry out a certain demand. He is mentally well ordered if he succeeds in performing the task. He becomes mentally disordered, his facial expression becomes rigid, he becomes aggressive toward the physician, and may finally lose consciousness if he is unable to perform the assigned task. In the patients, the stimulations that were formerly adequate are adequate no longer, because of the changes in the brain structure. The patients can function normally only so long as their activities are confined to a narrow sphere about them. If this threshold is crossed, a disordered condition develops, fear arises, and a "catastrophe reaction" is induced, as Goldstein terms this condition. In order that they may not get into such a situation, their minds must be kept occupied with activities within their range of performance; hence the wonderful but yet pathologic order in which they keep things. Is a person with such a brain injury that has healed to be regarded as ill or well? In answering this question, one must take the healthy individual as the point of departure. One is well if the manifestations and activities of life correspond to, or are within the range of, the biologic capacity to perform. After a disease has run its course, such an agreement no longer exists, for there is no compensation for performances that have dropped out if restoration is incomplete. Then nature endeavors to find a different milieu for the organism, one that better corresponds to its changed capacities. We have an analogy in the case of a person with compensated heart defects. Such a person can be regarded as well if he avoids situations to which, owing to his impaired heart, he is not equal. Physicians can herein learn from nature and support its strivings by providing for these injured patients a changed milieu in which they can again establish an equilibrium. If it is not feasible to change the milieu, the patient must be taught to be resigned to his fate and to endure the symptoms that necessarily arise. If that can be accomplished, the patient will again attain to a fair degree of performance. It is evident, therefore, that the physician in charge of the treatment must know well the personality of the patient. But for that purpose a specialized scientific inquiry is needed.

Vital Statistics of Prussia

According to a report of the Preussisches Statistisches Landesamt, the marriage rate in the large cities of Prussia for the first quarter of 1929 was high. Although the average rate of 7.7 per thousand of population was lower than that of the first quarter of 1928, it surpassed the status attained in the corresponding quarter of the years just preceding. The birth rate for the previous year had remained stable, but for the first quarter of the current year the birth rate showed a decline to 18.1. The highest birth rates were again recorded in cities with a strong mining population. The lowest birth rate, 10.6, as compared with 11.0 for the first quarter of 1928, was reported from Berlin. The mortality for the reported quarter was extremely high. The average death rate, which for the corresponding quarter of the previous year was 13.5, rose to 18.1 per thousand. The increased rate is doubtless due to the unusually severe cold that characterized the winter of 1928-1929. Influenza and pneumonia were especially frequent causes of death, particularly in February, which was the coldest month of the winter. In that month the average death rate of the large cities mounted to 23.7. In March, the average death rate was 17.0. Likewise, the infant mortality for the reported quarter was more unfavorable than for the same period of 1928. As a result of the high mortality and the decline in the birth rate, in twenty of the thirty-four "large" cities of Germany there was, for the quarter, an excess of deaths over births, whereas in the first quarter of 1928 only four cities reported an excess of deaths over births. In February there were even twenty-five large cities of the *reich*, which showed an excess of deaths over births. In Berlin, the excess of deaths over births for the quarter was 6,901.

Vaccination Against Diphtheria in Berlin

In a recent number of the *Deutsche medizinische Wochenschrift*, Prof. Dr. Seligmann, director of the Berlin municipal public health service, reports the results of protective inoculation against diphtheria for the year 1928. The total number of inoculated persons Seligmann estimates at 100,000, of whom 88,172 were discovered through the aid of the card index system at the central office of the public health service. There are more school children than children of preschool age among the vaccinated, as the former are subjected to greater danger. The inoculations were carried out with funds furnished by the Behring-Werke and by the I. G. Farben. Of the 88,000 children of the age of 15 years, 363 contracted diphtheria, which is equivalent to 4.1 per thousand, whereas the usual proportion in Berlin in children of this age group is 7.5 per thousand. It was found that children who were vaccinated only once had secured no protection; on the contrary, the morbidity rate among such children was considerably higher than the average. Of the 65,502 children that were vaccinated twice, 177 came down with diphtheria, which is 2.7 per thousand. It should be noted that a considerable number of children were taken ill such a short time after inoculation that there had been insufficient time for any protective influence to make itself felt. Of the 363 cases of diphtheria mentioned, sixty-five were designated as mild, fifty-two moderate, and thirty-four severe, while in 212 cases no statement was recorded as to the severity of the disease. There were thirty-two deaths, or 8.8 per cent case mortality, whereas the case mortality for Berlin is 9.3 per cent. If those who were vaccinated only once are excluded, the mortality rate rises to 10.2 per cent. It is evident, therefore, that the disease assumed a much milder form in the persons who were vaccinated.

VIENNA

(From Our Regular Correspondent)

Nov. 24, 1929.

Electropathology and Forensic Medicine

At a recent session of the Internationale Kriminalistische Vereinigung, Prof. Dr. Jellinek, an authority in electropathology, delivered an address on "Electropathology in Relation to Forensic Medicine," in which some interesting observations on a number of preparations and photographs were presented. It was clearly demonstrated how erroneous the widespread view is that electric injuries are always in the nature of burns. The speaker emphasized that the fundamental action of electricity is purely mechanical. Various substances, such as paper, wood and bones, suffer mechanical injuries without the slightest trace of burns being visible. At times, burns actually do occur, and occasionally signs of intense degrees of heat are observed. Burns are produced when there is an imperfect contact; for instance, on touching accidentally a high tension wire, from which flames burst forth before contact is actually established. The current leaves behind also other traces. Sometimes, parts of the body or certain objects are covered with a fine coating of metal, so that they present a galvanized appearance. The metal has been decrepitated by intense heat and has deposited itself in a thin layer. If the contact is intimate, such as occurs when one object is pressed against another, the current markings bear a close resemblance to scratch wounds. In a recently observed case of suicide, the hand of the deceased showed current markings that resembled cuts, which proves that the wire was held in his hand before there was any contact with the high tension system. Thus any suspicion of outside violence was excluded. Such current markings are important evidence for the differentiation of murder and suicide and should be carefully looked for. In grave accidents it may happen that no traces are left on the body, although there are such on the clothes. In one instance a man who had suffered an accident had kept the fact secret and had died soon afterward; it was not until after the lapse of several years that the speaker discovered on the man's clothing traces of the action of the electric current. Professor Jellinek emphasized especially that electrocution is only "apparent death," so that when the mechanical or other injuries are not too severe there is hope of resuscitation if prompt aid can be rendered. The sovereign remedy is artificial breathing, which should be instituted for a number of hours before hope is abandoned. The professor emphasized that the existing regulations of the safety and penal codes need revision in the light of the knowledge recently gained on the subject of electricity.

The Scope of Social Insurance in Austria

In connection with the debate on the budget for 1929, some interesting statistics were given on the amount of state insurance held by persons who have no independent business of their own —the wage earners and salaried employees. The total number of persons carrying health insurance at present is 1,870,000, in addition to which there are about 150,000 independent persons in the field of agriculture. If the families of the persons insured in the *krankenkassen* against disease and accident are included, the number of persons benefiting by social insurance is about 4,000,000, or 60 per cent of the total population of Austria. The number insured against loss of employment is 1,050,000. The amount that an industrial workman has to pay in monthly is, on the average, 24 Austrian shillings, or $3.37. Of this amount, the workman pays half and the employer half. On the average, that is about 14 per cent of the actual earnings. The total amount paid in annually by the insured, for all kinds of insurance taken together, ranges around 420 million shillings, or nearly $60,000,000. In the workmen's *krankenkassen*, the administrative expenses amount to 10 per cent; in the commercial employees' *krankenkassen*, to 10 per cent, and in the *krankenkassen* of the state and municipal civil servants, to 8 per cent of the contributions levied. Under such conditions, it is evident why the medical profession regards the *krankenkassen* as a serious obstacle in the development of their private practice and is opposed to the extension of social insurance to further classes of the gainfully employed population, except under certain restrictions. The fact that the population of the cities is increasing slowly (if at all) makes the situation more difficult, since the increasing number of physicians are unable to secure a sufficient clientele.

Trials with Mechanical Artificial Breathing

After Dr. R. Eisenmenger, of the Vienna medicolegal institute, had carried on, some time ago, successful experiments with a pumping device for establishing artificial breathing in the bodies of animals and human beings who died recently, he continued his researches in the physiologic institute at the University of Vienna. His apparatus consists essentially of a small motor, which is applied to the abdomen, sodium chloride solution being injected, at the same time, into a blood vessel. In the first experiments it was shown that the dead bodies took on more color in the face; they became cyanotic instead of pale, and drops of blood fell from the wounds. Thus, the circulation appeared to have been set in motion again. When reports of these results were first published, they awakened considerable skepticism. However, the experiments carried out in the physiologic institute supplied indisputable evidence that mechanically induced "respiration" will start blood circulation in dead bodies; in fact, they have shown that tissue respiration can be reawakened after death. Ten minutes after the cessation of the heart beat, as established by cessation of the carotid pulse and disappearance of the blood pressure, and twenty minutes after the last breath, the resuscitation apparatus was applied to the bodies and, by means of suction and pressure, the abdominal walls were made to develop a respiratory motion. It could be established that an aeration of the lungs was brought about. Through regulation of the apparatus the dead body took up as much air as during life. It could be shown that, at the same

time, rhythmic circulation of the blood was set up. The pulse pressure in the carotid artery became as strong as during life. This blood circulation extended to the whole body. Thus, india ink was injected into the saphenous vein and five minutes later it was found in all organs—the lungs, the liver, the brain, and elsewhere. But most remarkable is the observation that mechanical respiration will produce gas exchange after death; and that, on the ingestion of pure oxygen, the latter disappeared and carbon dioxide was given off. These experiments, which may prove to be exceedingly important in connection with the resuscitation of persons who have suffered a serious accident, are being continued in the physiologic institute, where the influence of chemical resuscitation remedies in combination with the pumping apparatus will be studied.

Student Riots at the University

Recently, the University of Vienna was the scene of some regrettable incidents, which brought serious disturbance to the work of many students. Incited by political agitators, who, unfortunately, had won the favor of a number of the professors, certain groups of students staged demonstrations against several instructors, on the alleged ground that they were not sympathizers with the German national movement. Dr. Tandler, the professor of anatomy, appeared to be the object of the more serious attacks, his lecture room and the anatomic institute having been badly damaged by the rioters. But there were also fistic encounters and other disturbances at the main university buildings. Unfortunately, during the disorder, a number of foreign students were roughly handled, so that the authorities were compelled to close the university for several days. With the exception of the institutes for anatomic, physiologic and chemical research, the work in the medical institutes was carried on as usual. In spite of the fact that Herr Gleispach, the rector of the university, sought to palliate the conduct of the students, great indignation exists among those who are not nationals. Some foreign students threaten to leave the university if such manifestations should be repeated. A thorough investigation of the affair has been ordered by the government.

A New (Biochemical) Form of Urinalysis

In an address before the Gesellschaft der Aerzte, delivered in Vienna, a few days ago, Professor Freund described a new method of urinalysis, which has a biochemical basis. Ordinary urinalysis endeavors to establish the qualitative or quantitative difference between pathologic urine and normal urine, by means of general chemistry. The new method proposed is based on observations of changes that occur with reference to solubility and formation of precipitates when urine is allowed to act on various organic elements and organic substances. It is well known that certain types of urine exert a destructive action on erythrocytes. Professor Freund was able to demonstrate, during the war, that normal urine destroys leukocytes but in virulent suppurations has no influence. Continuing his researches, he has been able to establish that, by the addition of pieces of serosa or intestinal musculature to the urine of appendicitis patients, or of pieces of liver or of kidney cells in parenchymatous disorders of these organs, a more marked impairment of these cells is brought about than by normal urine. Professor Freund experimented also with organ extracts. After filtration of samples of urine, they were placed in the incubator and then mixed with acetic acid. Normal urine remained perfectly clear or showed slight turbidity; there was therefore no nucleoprotein present, or, at the most, a small amount. The urine in special organic disorders gave markedly increased precipitates of specific nucleic acid compounds. It is evident, therefore, that in various organic disorders the urine with this test assumes a specific behavior. Freund emphasized that these results may serve as a basis for a new type of urinalysis for the diagnosis of organic disorders. The main development of the method is yet to come.

Marriages

CONLEY HALL SANFORD to Miss Mary Elizabeth Henderson, both of Memphis, Tenn., Dec. 16, 1929.

EDWARD T. MCNICHOLAS to Miss Florence Anna Flynn, both of Philadelphia, Nov. 27, 1929.

F. A. CORN, JR., Lonoke, Ark., to Miss Christine Huffman of Little Rock, Dec. 5, 1929.

F. P. DALY, Reedsburg, Wis., to Mrs. Elizabeth Jerome of La Valle, Nov. 16, 1929.

BERNARD MANN to Miss Helen M. Marcus, both of Philadelphia, Nov. 17, 1929.

Deaths

Vincent Yardley Bowditch, Boston; Harvard University Medical School, Boston, 1879; assistant and instructor of clinical medicine at his alma mater, 1892-1899; member of the Massachusetts Medical Society and the American Climatological and Clinical Association; past president of the National Association for the Study and Prevention of Tuberculosis and the Massachusetts Tuberculosis League; formerly on the staffs of the Carney Hospital, New England Hospital for Women and Children, Boston City Hospital and the State Hospital, Rutland; at one time president of the Central New England Sanatorium, Rutland, and medical director of the Sharon (Mass.) Sanatorium; author of "Life and Correspondence of Henry I. Bowditch, M.D."; aged 77; died, Dec. 20, 1929, of pulmonary tuberculosis.

Robert Douglas Alway ✙ Aberdeen, S. D.; University of Toronto Faculty of Medicine, Toronto, Ont., Canada, 1893; member of the House of Delegates of the American Medical Association, 1909-1910; past president and secretary of the South Dakota State Medical Association; past president of the State Board of Health and Medical Examiners; member of the American Academy of Ophthalmology and Oto-Laryngology and the American College of Surgeons; on the staff of St. Luke's Hospital; aged 61; died, Dec. 21, 1929.

Frank Le Moyne Hupp ✙ Wheeling, W. Va.; Medical Department of Columbia College, New York, 1889; member of the House of Delegates of the American Medical Association, 1911-1912, 1916-1917 and 1919; member of the American Surgical Association, the Southern Surgical Association, the American College of Surgeons and the American Urological Association; on the staff of the Ohio Valley General Hospital; aged 64; died in December, 1929, of cerebral hemorrhage.

Edward Staehlin ✙ Newark, N. J.; Medical Department of Columbia College, New York, 1890; past president of the Essex County Medical Society; member of the American College of Surgeons; for many years on the staff of the Newark City Hospital and the Babies Hospital; past president of the medical board of the Newark Memorial Hospital; aged 64; died, Dec. 10, 1929, of heart disease.

Walter Teed Bronson ✙ Chicago; Northwestern University Medical School, Chicago, 1910; secretary of the Radiological Society of North America; director of the roentgen-ray laboratories at his alma mater; served during the World War; roentgenologist to the Englewood Hospital; aged 42; died, Dec. 26, 1929, at the Edward Hines, Jr., Hospital, Maywood.

Daniel Nicholas Bertolette ✙ Captain, U. S. Navy, retired, Reading, Pa.; Jefferson Medical College of Philadelphia, 1872; was appointed medical director with rank of captain in 1905 and was retired in 1913; veteran of the Spanish-American War; aged 78; died, Nov. 26, 1929, at the Jefferson Hospital, Philadelphia, of cardiac insufficiency following a prostatectomy.

Curtis Smiley Foster ✙ Pittsburgh; University of Pennsylvania School of Medicine, Philadelphia, 1898; member of the American Association of Obstetricians, Gynecologists and Abdominal Surgeons and the American College of Surgeons; on the staff of the Western Pennsylvania Hospital; aged 55; died, Nov. 28, 1929, of angina pectoris.

Rose Mildred Purman ✙ Cleveland; National University Medical Department, Washington, D. C., 1901; member of the Washington State Medical Association and the Associated Anesthetists of the United States and Canada; on the staff of the Cleveland Clinic Hospital; aged 62; died, Dec. 2, 1929, of abdominal carcinoma.

Wiley B. Barnes, Wynne, Ark.; Vanderbilt University School of Medicine, Nashville, Tenn., 1878; Medical Deartment of Columbia College, New York, 1884; member of the Arkansas Medical Society; aged 73; died, Nov. 4, 1929, at the Baptist Memorial Hospital, Memphis, Tenn., following an operation for intestinal obstruction.

Jennings Matson King ✠ Wellsville, Ohio; University of Maryland School of Medicine, Baltimore, 1897; past president and secretary of the Columbiana County Medical Society; aged 57; died, Dec. 8, 1929, at the Alleghany General Hospital, Pittsburgh, following a gastrojejunostomy performed on account of gastric ulcer.

Isaac Picard Heymann ✠ Brooklyn; Johns Hopkins University School of Medicine, Baltimore, 1913; member of the Radiological Society of North America; on the staffs of the St. Peters' Hospital, Coney Island Hospital and the Long Beach (N. Y.) Hospital; aged 39; died, Nov. 23, 1929, of heart disease.

Charles Robert Phillips, Hornell, N. Y.; Medical Department of Columbia College, New York, 1889; member of the Medical Society of the State of New York; member of the board of managers of the Willard (N. Y.) State Hospital; aged 62; died suddenly, Nov. 15, 1929, of heart disease.

Michael Joseph Sullivan, Englewood, N. J.; Baltimore Medical College, 1902; member of the Medical Society of New Jersey; past president of the Bergen County Medical Society; served during the World War; on the staff of the Englewood Hospital; aged 56; died, Nov. 3, 1929.

John Nicholas Bassin, Newark, N. J.; Long Island College Hospital, Brooklyn, 1903; member of the Medical Society of New Jersey; formerly associate in surgery at his alma mater; served during the World War; aged 53; died, Dec. 18, 1929, of cerebral hemorrhage.

Jackson A. Frank, Columbus, Ohio; Starling Medical College, Columbus, 1904; member of the Ohio State Medical Association; chief of the division of hygiene of the state department of health; aged 48; died, Dec. 5, 1929, at the University Hospital, of acute nephritis.

Benjamin Rush Beeler ✠ Mineral Wells, Texas; College of Physicians and Surgeons, Baltimore, 1895; past president of the Palo Pinto County Medical Society; on the staff of the Mineral Wells Sanitarium; aged 64; died suddenly, Nov. 19, 1929, of heart disease.

Simon P. Conduff, Draper, Va.; Baltimore Medical College, 1898; member of the Medical Society of Virginia; mayor of Draper; bank president; aged 56; died, Nov. 24, 1929, at the Pulaski (Va.) Hospital, of arterial hypertension, cerebral hemorrhage and uremia.

Richard Hubert Perry, Nashville, Tenn.; Vanderbilt University School of Medicine, Nashville, 1913; member of the Tennessee State Medical Association; aged 40; died, Nov. 15, 1929, in a local infirmary, of duodenal ulcer and diabetes mellitus.

Leonard Ellsworth Stutsman, Dayton, Ohio; Ohio State University College of Medicine, Columbus, 1915; member of the Ohio State Medical Association; aged 36; died in December, 1929, of heart disease, while aboard a ship on the Pacific Ocean.

George Dock Fussell ✠ Clearfield, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1914; member of the American Society of Clinical Pathologists; aged 41; on the staff of the Clearfield Hospital, where he died, Nov 30, 1929.

Clayton A. Hoover, Blackfoot, Idaho; Medical Department of Columbian University, Washington, D. C., 1875; member of the Idaho State Medical Association; formerly on the staff of the Blackfoot General Hospital; aged 76; died, Nov. 29, 1929.

Fay Porter Clark ✠ Kansas City, Kan.; College of Physicians and Surgeons, Kansas City, 1898; aged 57; for many years on the staff of the Bethany Hospital, where he died, Dec 13, 1929, of carcinoma of the stomach with metastasis to the liver.

Carl Kice Brown ✠ Nashville, Mich.; University of Illinois College of Medicine, Chicago, 1914; secretary of the Barry County Medical Society; aged 47; died, Dec. 10, 1929, at the University Hospital, Ann Arbor, of cardiac embolism.

Jesse Jerome Burdick ✠ St. Louis; Medical Department of Washington University, St. Louis, 1908; served during the World War; on the staff of the St. Louis Mullanphy Hospital; aged 44; died, Nov. 24, 1929, of chronic endocarditis.

Thomas M. Fletcher, Mena, Ark.; University of Arkansas School of Medicine, Little Rock, 1894; member of the Arkansas Medical Society; aged 62; died, Dec. 11, 1929, at St. Vincent's Infirmary, Little Rock, of pulmonary tuberculosis.

William McKay Deinstadt, St. Stephen, N. B., Canada; Harvard University Medical School, Boston, 1876; member of the Maine Medical Association; formerly member of the school board; aged 81; died, Dec. 5, 1929, at Vancouver.

Harry Theodore Miller ✠ Springfield, Ohio; New York Homeopathic Medical College and Hospital, 1888; served during the World War; on the staff of the Springfield City Hospital; aged 63; died in December, 1929, of pneumonia.

Middleton Fuller Cuthbert ✠ Washington, D. C.; Medical Department of Columbian University, Washington, 1883; formerly on the staffs of the Providence and Emergency hospitals; aged 69; died, Dec. 15, 1929, of myocarditis.

Walter George Eisenman ✠ Chisholm, Minn.; University of Michigan Medical School, Ann Arbor, 1909; health officer and deputy coroner; medical director of the Rood Hospital; aged 44; died, Dec. 9, 1929, of heart disease.

Herbert R. Thompson, Morristown, N. Y.; Queen's University Faculty of Medicine, Kingston, Ont., Canada, 1910; member of the Medical Society of the State of New York; aged 50; died, Nov. 20, 1929, of septicemia.

Edward L. Herrick, Kenosha, Wis.; Homeopathic Hospital College, Cleveland, 1885; member of the State Medical Society of Wisconsin; on the staff of the Kenosha Hospital; aged 62; died, Nov. 3, 1929, at Rochester, Minn.

Carleton Thomas Bagley, Avoca, N. Y.; University of Buffalo School of Medicine, 1916; served during the World War; formerly on the staff of the Binghamton (N. Y.) State Hospital; aged 37; died, Dec. 2, 1929.

Morell Deloss Cadwell, Fairport Harbor, Ohio; University of Michigan Medical School, Ann Arbor, 1893; aged 64; died, Oct. 27, 1929, at the Lake County Memorial Hospital, Painesville, of cerebral hemorrhage.

Claude Lester Jones, East Bernard, Texas; Louisville (Ky.) Medical College, 1897; member of the State Medical Association of Texas; aged 57; died, Oct. 26, 1929, at the Santa Rosa Hospital, San Antonio.

Albert Everett Conrad ✠ Decorah, Iowa; Hahnemann Medical College and Hospital, Chicago, 1895; served during the World War; member of the school board; aged 60; died, Dec. 3, 1929, of influenza.

Thomas Walter Foster ✠ Butler, Mo.; Marion-Sims College of Medicine, St. Louis, 1891; on the staff of the Butler Community Hospital; aged 62; died, Dec. 9, 1929, of myocarditis and endocarditis.

David De Beck, Seattle; Medical College of Ohio, Cincinnati, 1881; formerly clinical lecturer and professor of ophthalmology, Cincinnati College of Medicine and Surgery; aged 72; died, Nov. 18, 1929.

Joseph P. Donovan, Madison, Wis.; College of Physicians and Surgeons, Chicago, 1900; formerly city health officer; aged 55; died, Nov. 16, 1929, of coronary thrombosis and arteriosclerosis.

Scott Percy Woodin ✠ Seattle; University of Michigan Medical School, Ann Arbor, 1886; aged 67; died, Nov. 12, 1929, of epithelioma of the left hand with metastasis to the chest wall.

Add A. Evans, Bald Knob, Ark.; Memphis (Tenn.) Hospital Medical College, 1901; member of the Arkansas Medical Society; aged 52; died, Nov. 28, 1929, of hemorrhage of the stomach.

Franklin H. Redmond, San Antonio, Texas; Kansas Medical College, Topeka, 1905; member of the State Medical Association of Texas; aged 62; died, Nov. 10, 1929, of heart disease.

William Hall Rupert ✠ Crystal Lake, Ill.; Hahnemann Medical College and Hospital, Chicago, 1908; aged 47; died, Nov. 27, 1929, at the Rockford (Ill.) Sanatorium, of pneumonia.

Carl F. Muenz, Detroit College of Medicine, 1896; on the staff of the Grace Hospital; aged 61; died, Nov. 27, 1929, following an operation for atrophic cirrhosis of the liver.

John Elfers, Rising Sun, Ind.; Miami Medical College, Cincinnati, 1878; member of the Indiana State Medical Association; aged 77; died, Dec. 1, 1929, of cerebral hemorrhage.

William J. Morgan, Manchester, Ohio; Eclectic Medical Institute, Cincinnati, 1903; member of the Ohio State Medical Association; aged 50; died suddenly in December, 1929.

George H. Foster, Rockaway, N. J.; Bellevue Hospital Medical College, New York, 1889; member of the Medical Society of New Jersey; aged 71; died, Dec. 11, 1929.

Harry Wooten Lee ✠ Runnemede, N. J.; Jefferson Medical College of Philadelphia, 1922; aged 30; died, Dec. 15, 1929, at the Underwood Hospital, Woodbury, of influenza.

Edward C. Pyatt ✠ Pine Bluff, Ark.; University of Arkansas School of Medicine, Little Rock, 1911; aged 59; died, Nov. 1, 1929, as the result of a cerebral hemorrhage.

Frank William Simpson ✠ Berkeley, Calif.; Medical Department of the University of California, 1900; aged 53; was killed, Dec. 8, 1929, in an automobile accident.

Charles Blum Geiger ✠ Manning, S. C.; Medical College of the State of South Carolina, Charleston, 1893; served during the World War; aged 62; died, Nov. 28, 1929.

Hugh Hover, East Moline, Ill.; Hering Medical College, Chicago, 1900; on the staff of the East Moline State Hospital; aged 54; died, Dec. 3, 1929, of pneumonia.

John J. Gooding, Uhrichsville, Ohio; University of Wooster Medical Department, Cleveland, 1875; aged 76; died, Dec. 8, 1929, of cerebral hemorrhage.

Alfred Barradell ✠ Chicago; Chicago College of Medicine and Surgery, 1913; aged 59; died, Dec. 2, 1929, of cerebral hemorrhage and diabetes mellitus.

Ulysses Grant Miller ✠ Los Angeles; Marion-Sims College of Medicine, St. Louis, 1891; served during the World War; aged 61; died, Nov. 26, 1929.

Walter De Moulpied, Hemmingford, Que., Canada; University of Bishop College Faculty of Medicine, Montreal, 1881; aged 72; died, Oct. 24, 1929.

William Powell Walker, Fort Myers, Fla.; Southern Medical College, Atlanta, 1881; aged 69; died, Nov. 4, 1929, of cardiovascular renal disease.

Garfield C. Burrows ✠ Margate City, N. J.; McGill University Faculty of Medicine, Montreal, Que., Canada, 1915; aged 42; died, Dec. 6, 1929.

Thomas Joseph Caldwell ✠ Ladysmith, Wis.; Trinity Medical College, Toronto, Ont., Canada, 1896; aged 61; died, Dec. 8, 1929, of pneumonia.

Harry A. Saunders, Wenatchee, Wash.; University of Nebraska College of Medicine, Omaha, 1894; aged 64; died, Oct. 24, 1929, of pneumonia.

Robert Clinton Miller ✠ Freeport, Ill.; College of Physicians and Surgeons, Chicago, 1887; aged 62; died, Dec. 6, 1929, of diabetes mellitus.

James Dirickson Brittingham ✠ Philadelphia; Medico-Chirurgical College of Philadelphia, 1899; aged 62; died, Dec. 14, 1929, of heart disease.

John Wallace ✠ Boston; L.R.C.P., L.R.C.S., Edinburgh, and L.F.P.S., Glasgow, 1893; aged 59; died, Dec. 2, 1929, of coronary thrombosis.

Isaac B. Perkins, Denver; Denver College of Medicine, 1886; member of the Colorado State Medical Society; aged 70; died, Nov. 7, 1929.

Thomas Lee Randolph, Ripley, Miss.; Memphis (Tenn.) Hospital Medical College, 1893; aged 62; died, Nov. 1, 1929, of arteriosclerosis.

Harry S. Brevoort, Wichita Falls, Texas; Medical Department of Omaha University, 1893; aged 58; died, Dec. 20, 1929, in a local hospital.

Herman Theodore Bechtold, O'Fallon, Ill.; Missouri Medical College, St. Louis, 1880; aged 75; died, Dec. 17, 1929, of heart disease.

Robert Thomas Davis, Pace, Miss.; Memphis (Tenn.) Hospital Medical College, 1901; aged 52; died, Dec. 20, 1929, of myocarditis.

Edward E. Philbrick, Tallahassee, Fla.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1889; aged 72; died, Nov. 15, 1929.

Henry Frederick Eichacker, Brooklyn; Medical Department of Columbia College, New York, 1890; aged 71; died, Nov. 9, 1929.

Paris P. Meade, Flatgap, Ky.; Kentucky School of Medicine, Louisville, 1898; aged 56; died, Nov. 22, 1929, of chronic nephritis.

John McClellan Klinck ✠ Chicago; Barnes Medical College, St. Louis, 1905; aged 58; died, Oct. 27, 1929, in Los Angeles.

George Skiff Ford ✠ Bridgeport, Conn.; Bellevue Hospital Medical College, New York, 1893; aged 63; died, Sept. 25, 1929.

Francis W. Brooke, Portland, Ore.; University of Oregon Medical School, Portland, 1896; aged 77; died, Oct. 11, 1929.

Axel F. Oscar Nielson, Burley, Idaho; Illinois Medical College, Chicago, 1905; aged 60; died, Oct. 30, 1929.

Bureau of Investigation

PANCRETONE

Another Nostrum for Diabetes

The Wabash Chemical Company of Chicago exploits an alleged cure for diabetes called Pancretone. It also has as a side-line a number of other nostrums, such as Digestoids, Laxalets, Intesoids, Pilene, Virillo, Asthmatol and Myrol. Its chief product, however, is Pancretone, which, according to advertisements that have appeared in Mr. Hearst's Chicago *Herald and Examiner*, is "relieving thousands of diabetics." It is advertised on the free-trial treatment plan common to diabetes cure quackery. Some of the claims made for Pancretone are:

"This remedy is one of the best agents known to medical science for the complete conquering of this dreaded disease."

"As a medicinal treatment for diabetes, Pancretone is the nearest specific that has yet been found."

"Will eradicate sugar from the urine in most cases in from 5 to 21 days."

After one has paid his money for a package of Pancretone, he learns from the trade package that "Pancretone contains no pancreatic substance." According to the advertising matter, the diabetic who will take Pancretone "requires no rigid diet regulation." He is told, however, that he must "not use Potatoes, White Bread, Sugar, Candy, Pie and Cake, Macaroni, Rice, Spaghetti and Beans, Dates, Figs, Bananas, Preserves and Jellies," and "for the first five days must not use either butter or cream."

DIABETES

Successfully Treated

by a wonderful New Discovery called "PANCRETONE." No starvation diet. No harmful drugs. This amazing NEW REMEDY is relieving thousands. Call or write today for FREE TRIAL TREATMENT. No obligation.

WABASH CHEMICAL CO.

N-426 S. Wabash Ave. CHICAGO, ILL.

From material in the files, there is reason to believe that the Wabash Chemical Company is merely a high-sounding name used by one Grover C. Caldwell, who, in the past at least, has described himself as "Dr. Grover C. Caldwell." A careful search of the files fails to show that any man of this name is a graduate of any reputable medical school or is licensed to practice medicine in any state in the Union. There was a Grover C. Caldwell who, three or four years ago, was proprietor of the State Medical Laboratory, a high-sounding name for another mail-order remedy for diabetes known as Dibetosan. It appears, further, that a man of the same name has exploited an alleged remedy for locomotor ataxia.

As is the case with all mail-order medical concerns the testimonial looms large in the advertising of the Wabash Chemical Company. Thus, under the generic description, "Prominent Citizens of Chicago" we find:

"In all of my Twenty-five years experience in the Drug Business I don't believe that I know of an Oral Treatment that will equal Pancretone in Diabetes."

W. F. BIELFUSS, Mgr., Sargents Drug Store
Largest Prescription Store in Chicago.

"It is wonderful to think that you have a treatment which will eventually do away with the Needle in Diabetes."

DR. A. B. BALL, Chicago.

We are unable to find any person in Chicago by the name of A. B. Ball who is a graduate of any reputable medical school or is licensed to practice medicine. Nor does the Classified Telephone Directory of Chicago show any person of this name listed under Osteopaths, Chiropractors, Naprapaths, Naturopaths, etc.

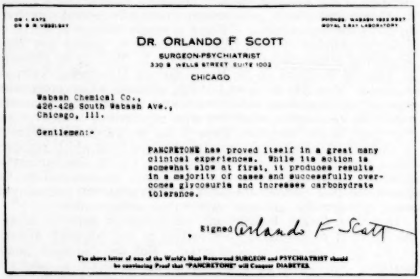
V 9
193

One testimonial that the Wabash Chemical Company considers of sufficient importance to reproduce photographically on a separate sheet of paper purports to come from Orlando F. Scott, M.D., Chicago, who, according to Pancretone standards, is "one of the World's Most Renowned Surgeon and Psychiatrist." We reproduce in miniature the testimonial from Dr. Scott.

Because of the number of inquiries received regarding this nostrum, the A. M. A. Chemical Laboratory was asked to analyze the preparation. Its report follows:

LABORATORY REPORT

"Pancretone Tablets.—One original box of Pancretone (Wabash Chemical Co., 426-428 South Wabash Ave., Chicago, Ill.) was submitted for examination by the Bureau of Investigation to the A. M. A. Chemical Laboratory. The package contained 285 brown uncoated compressed tablets, almost tasteless and possessing an odor suggestive of drug extractives. The average weight of each tablet was 0.375 Gm. (approximately 5¾ grains). In addition to the package, there were two small sealed envelopes, one labeled Laxalets and the other Digestoids.



DR. ORLANDO F SCOTT

SURGEON-PSYCHIATRIST

330 S WELLS STREET SUITE 1002

CHICAGO

Wabash Chemical Co.,
426-428 South Wabash Ave.,
Chicago, Ill.

Gentlemen:-

PANCRETONE has proved itself in a great many clinical experiences. While its action is somewhat slow at first, it produces results in a majority of cases and successfully overcomes glycosuria and increases carbonydrate tolerance.

Signed Orlando F Scott

The above letter of one of the World's Most Renowned SURGEON and PSYCHIATRIST should be convincing Proof that "PANCRETONE" will Conquer DIABETES.

"Microscopic examination of the Pancretone Tablets disclosed an abundance of what appeared to be cornstarch; also the presence of granular masses of protein, in which were embedded starch grains. There also appeared to be present a quantity of finely granular material which did not respond well to the iodine test for protein, suggestive of commercial pancreatin.

"Qualitative chemical tests indicated the presence of calcium, a trace of iron, carbonates, and a mixture of amyloclastic enzymes, suggestive of diastase, malt extract, pancreatin, etc. Alkaloids, heavy metals, such as bismuth, organic acids or emodin-bearing drugs were not found. Quantitative determinations yielded the following:

Loss at 100 C	13.74 per cent
'Sulphated' Ash[1]	53.77 per cent
Alcohol insoluble material	73.60 per cent
Alcohol soluble material	10.39 per cent
Acid insoluble material	7.36 per cent

"From the foregoing, it may be concluded that Pancretone is essentially a 'digestive tablet' containing an amyloclastic enzyme, to which has been added considerable calcium carbonate and corn starch.

"Laxalets.—An accompanying original envelope labeled 'Laxalets' contained 30 small brown coated pills. Qualitative tests indicated (1) the presence of an emodin-bearing drug, (2) an alkaloidal reaction resembling strychnine, and (3) other undetermined vegetative extractives. An odor suggestive of aloes was noted on crushing the tablets. From the foregoing tests, it appears that Laxalets are essentially a laxative combination, suggestive of aloin, belladonna, cascara and strychnine (commonly known as Hinkle's pills).

"Digestoids.—An accompanying original envelope labeled Digestoids contained 112 small grayish-black uncoated tablets. Qualitative tests indicated the presence of sodium, a trace of magnesium, charcoal, milk-sugar, carbonates, a mixture of proteoclastic enzymes suggestive of pancreatin, pepsin, etc., and an aromatic oil indicative of peppermint. Alkaloids, salts of heavy metals and emodin-bearing drugs were not found. From the foregoing tests it appears that Digestoids are essentially a digestive combination suggestive of charcoal, baking soda, saccharated pepsin, pancreatin and aromatics."

1. The "sulphated" ash consisted essentially of calcium sulphate and a trace of iron.

It is obvious from the chemists' report that any beneficial results that may follow the Pancretone "treatment" will be due to the rigid diet restrictions that are part of it. Any preparation that is so advertised as to induce diabetics to treat themselves by means of a crude mail-order remedy, without the advice or supervision of a physician, is a menace. Pancretone belongs to this class!

Correspondence

GRAVITY DRAINAGE IN HAND INFECTIONS

To the Editor:—In reply to the criticism of Dr. Douglas W. Owen (THE JOURNAL, Dec. 7, 1929, p. 1828) of my article on Gravity Drainage (THE JOURNAL, Oct. 5, 1929, p. 1083), he has apparently misconstrued my position on the subject since he states that "in the examples cited a lack of knowledge of the anatomy of the lymphatics of the hand has led to erroneous conclusions."

I made no reference to the lymphatics of the hand but confined my views entirely to the excellent results that follow the use of gravity drainage when properly placed incisions are made. I never make dorsal incisions of the hand unless pus is present subcutaneously and the point of infection primarily is in the dorsal skin; then an incision should be made at the site nearest to the pus chamber and the hand inverted, thus utilizing gravity as an aid to proper drainage. The shortest route to an accumulation of pus, ordinarily, is the method employed in determining the location of the incision. When gravity drainage is used, the pus is quickly discharged without regard to the lymphatics.

I am familiar with Kanavel's work on "Infections of the Hand." My chief object in calling attention to the benefits obtained from gravity drainage was that it is little used in infections. I have not seen the term gravity drainage in medical literature.

ALBERT LLEWELLYN HALL, M.D., Fulton, N. Y.
216 Oneida Street.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

ACUTE ALCOHOLISM AND SHOCK

To the Editor:—Please outline the differential diagnosis between acute alcoholism and severe shock due to traumatism. Outline also, if possible, the comparative odor on the breath resulting from the ingestion of beer versus "near beer." In your opinion is the odor of beer on the breath to be detected from whisky or gin by a medical man of average experience in such matters? Please omit name.

M.D., California.

ANSWER.—The early stages of acute alcoholic intoxication are characterized by rapid pulse and respiration, flushed face, dilated pupils, and variable degrees of psychomotor incoordination. In the deeper states of alcoholic stupor the pulse and respiration may become quite slow, the face pale, the pupils constricted, body temperature subnormal and spinal fluid under increased pressure. Traumatic shock is usually associated with rapid pulse and respiration, pallor, and normal spinal fluid pressure, except in case of head injury, when blood may be found in the spinal fluid. The odor of alcohol in the breath, or, better, the determination of the amount of alcohol present in the breath, urine, blood or spinal fluid, by the methods described by Southgate, Bogen, Gettler or McNally, reveals the causal factor in acute alcoholic intoxication, but the presence of evidences of trauma should not be overlooked, as, despite its protective influence, acute alcoholic intoxication does not preclude the development of traumatic shock in the same individual.

Immediately after the ingestion of either beer or near bear, the various odors arising from the cereals and fermenting processes present may predominate, so that the odor of ethyl alcohol, although usually discernible in the beer, may be diffi-

cult to distinguish with assurance. Within a short time after ingestion, however, these additional complicating odors tend to disappear from the breath, provided the subject is not belching or vomiting, and, if sufficient strong beer has been imbibed to produce an appreciable concentration of alcohol in the blood stream, the characteristic odor of ethyl alcohol appears on the breath. Chemical test of the breath leaves no question as to the presence of this substance. Alcohol in the breath is most easily determined by bubbling 2 liters of exhaled air through 5 cc. of a boiling hot fresh solution of ⅓ per cent potassium bichromate in 50 per cent sulphuric acid. The color change, from yellow to blue, reveals the presence of alcohol.

The odor of beer in the mouth immediately after ingestion or after belching can be easily distinguished from that of whisky or gin by any physician of well developed olfactory powers, from the presence of the additional cereal, acid and "yeasty" components in the odor of beer. Later, when these disappear and only the ethyl alcohol appears in the breath, it may become impossible for any one to determine its source from smell alone.

The following articles may be consulted for further details:

Southgate, H. W., and Carter, Godfrey: Excretion of Alcohol in the Urine as a Guide to Alcoholic Intoxication, *Brit. M. J.* **1**: 463 (March 13) 1926.

Gettler, A. O.: The Alcoholic Content of the Human Brain, *Arch. Path.* **3**: 218 (Feb.) 1927.

Bogen, Emil: Drunkenness, *Am. J. M. Sc.* **176**: 153 (Aug.) 1928.

DIPHTHERIA ANTITOXIN

To the Editor:—Will you kindly tell me what the opinion is of the giving of a small dose of diphtheria antitoxin (say 1,000 units) to prevent a child taking diphtheria who has been exposed to it? Is it best to give it or simply keep the child under close observation and give the larger dose if the child develops diphtheria? There is quite a difference of opinion about the matter in this section of the state. This, of course, applies to those who have not had the Schick test and are not known to be immune. Also, has diphtheria antitoxin ever been known to cause any permanent heart trouble? Of course, the toxin causes trouble with the heart but there are still people in this state who believe fully that large doses of the antitoxin affect the heart.

D. E. STATON, M.D., Columbus, Miss.

ANSWER.—If the child can be carefully watched, it would be best to make cultures for diphtheria bacilli, and defer giving antitoxin until signs of diphtheria appear. It is not believed that diphtheria antitoxin has any deleterious effect on the heart, even in large doses. Any injury to the heart in diphtheria is due to the action of the diphtheria toxin before sufficient antitoxin has been given. In neglected diphtheria, secondary infections also may affect the heart.

SALIVATION DURING PREGNANCY

To the Editor:—A primipara, aged 27, who has been pregnant since last June, was at first bothered with extreme nausea, easily controlled by glandular products. After taking the glandular substance for about a week she began having an excessive flow of saliva. The glandular substance was stopped, but the flow of saliva has persisted, amounting to a quart or more daily. So far I have been unable to do anything for the condition. What suggestions have you to offer that she may obtain some relief? Please omit name.

M.D., Texas.

ANSWER.—Excessive salivation is a rare complication during pregnancy and when it occurs is difficult to overcome. The condition is a form of toxemia comparable to hyperemesis and the treatment of these two complications is somewhat similar. Because of the severe drain of fluid by mouth and the usually concomitant nausea and loss of appetite, it is advisable to give the patient 1 or 2 liters of physiologic solution of sodium chloride or Locke solution subcutaneously once a day. Practically the only drug that may be helpful is sodium bromide, of which about 7 Gm. should be given in divided doses each day. Sometimes a milk diet helps. There may be a psychic factor and an attempt should be made to overcome it. The salivation nearly always ceases promptly after delivery.

POSSIBLE ACTION ON GRAM-POSITIVE BACTERIA BY ARSENIC EXCRETED IN URINE

To the Editor:—Having treated some hundred and fifty-odd cases of gram-positive micro-organism infections of the urologic tract with uniform excellent, I may say miraculous, results, the urine usually being free from infection within forty-eight hours, I would like to know in what form neoarsphenamine is excreted in the urine that has a specific action on this type of organism. All the information on the excretion in the urine of this drug will be appreciated.

T. M. DAVIS, M.D., Greenville, S. C.

ANSWER.—Only a small part of neoarsphenamine is eliminated in the urine unchanged, pentavalent organic compounds and inorganic arsenites usually being recovered; and of the total arsenic, only a portion is eliminated by the urine (see Kolmer's Chemotherapy, pages 548-551). Neoarsphenamine is bactericidal for staphylococci and streptococci in vitro in menstruums of fresh urine, although the degree and rapidity of bactericidal effects are not especially high. Curative effects in streptococcus and anthrax bacteremias have been recorded, as likewise in staphylococcic infections of the genito-urinary tract with particular reference to kidneys. In pyelitis and cystitis due to *Bacillus coli*, however, neoarsphenamine does not appear to be as effective in treatment. Presumably the arsenical compounds produced from neoarsphenamine following intravenous injection are the bactericidal agents, although they are relatively feeble in vitro and the exact mechanism of their bactericidal action in vivo is unknown.

PATHOLOGY OF TOXIC MYOCARDITIS

To the Editor:—What is the pathology referred to in the term "toxic myocarditis"? What conditions give rise to such pathologic changes and is there a synonymous term? What is the pathology referred to in a diagnosis of "acute indigestion" and in cases so diagnosed what is the cause of death?

HENRY E. HAMPTON, M.D., St. Louis.

ANSWER.—Retrogressive processes, such as cloudy swelling, necrosis, fatty and hyaline degeneration, together with passive hyperemia and edema, predominate in what is generally referred to as "toxic myocarditis." There is rarely enough of fibrin, or fluid, or cellular exudate from the blood, to justify any name signifying inflammation (Goodpasture, E. W.: The Influence of Thyroid Products on the Production of Myocardial Necrosis, *J. Exper. Med.* **34**: 407 [Oct.] 1921), although when repair takes place these circulatory and retrogressive changes may be accompanied by an exudate, when the term myocarditis is appropriate. For most of the infectious diseases the myocardial involvement is made up of purely retrogressive changes from which recovery takes place without any inflammation. In the decompensated heart so commonly discussed by clinicians as myocarditis, the conditions that prevail are passive hyperemia and edema with some retrogressive changes, rather than inflammation.

In adults, "acute indigestion" which causes death is usually an incorrect diagnosis for obstruction of the coronary arteries or for the sequences of obstruction. But the diagnosis "acute gastritis" sometimes given for the cause of death of adults is frequently incorrect, when the real cause is poisoning by some metal such as mercury or arsenic. In infants, "acute indigestion," when employed to designate the cause of death, generally has reference to the acute dyspeptic diseases of malnutrition for which there are few anatomic indications, and death is undoubtedly the result of endogenous poisons at present unidentified. Many of the gross and microscopic lesions of the gastroenteritis of infants to which importance was formerly attached are now looked on as postmortem or agonal changes. None of them, so far as known, possess features which warrant their classification with such serious structural changes as severe pneumonia, hemopericardium or intracerebral hemorrhage. A bronchopneumonia often accompanies the infantile stomach and bowel troubles. In a strict sense, "pathology" means disease: its anatomic modifications, symptoms, chemistry and diagnosis; in fact, everything except treatment. The answers here are given as though the questions had been worded "What morbid anatomy may be found?"

ERGOTAMINE TARTRATE

To the Editor:—Please send me information regarding the present status of "ergotamine tartrate" in the treatment of migraines, and tell me where I may obtain this drug. Please omit name.

M.D., South Carolina.

ANSWER.—The value of ergotamine tartrate in the treatment of migraine has not as yet been fully established. Recently A. Tzanck (*Bull. et mém. Soc. méd. d. hôp. de Paris* **45**: 495 [May 6] 1929; abstr. THE JOURNAL, July 20, p. 241) has reported its use in thirty cases of migraine with good results, employing daily doses of from 2 to 6 mg. by mouth or 1 mg. subcutaneously. Since this drug in small doses has a stimulant action on the nerve endings of the sympathetic system and a paralyzing effect in large doses, and since in migraine there is usually a vasoconstrictor stage followed by vasodilatation, it is easy to understand why it may help sometimes and more frequently fail to relieve.

According to New and Nonofficial Remedies, 1929, p. 175, the drug is marketed under the trade name of "Gynergen," manufactured by the Sandoz Chemical Works of New York; it is supplied in ampules of 1 cc., which contain 0.5 mg. of the drug, and in tablets that contain 1 mg. of ergotamine tartrate to the dose. Continuous use of the drug may lead to gangrene and other symptoms of ergotism; hence, it is unfit for prolonged use.

CERTIFIED AND PASTEURIZED MILK — HONOLULU'S PROBLEM

To the Editor:—What suggestions can you offer on the following situation: In the city of Honolulu (population about 100,000) there are seventy-eight dairies producing and distributing approximately 40,000 quarts of milk daily. All these dairies are under government supervision, both municipal and territorial. This supervision, however, is unsatisfactory for several reasons, chiefly insufficient and untrained help and inefficiency, the fruit of politics. Two of the dairies produce certified milk, under supervision of a medical milk commission regularly appointed. Thirty-five of the dairies, producing from 16,000 to 20,000 quarts a day, distribute through a central association, which supervises the dairies from a sanitary standpoint, examines the milk as it comes in for bacterial counts and sediment, and then pasteurizes the milk before distribution. Of the independent dairies only one, distributing about 2,000 quarts a day, pasteurizes its milk. This leaves a total of forty dairies distributing 18,000 quarts of milk a day, which is distributed raw, under unsatisfactory conditions of production and distribution with little or no supervision from any responsible and impartial source. Certain elements in the community have felt that this situation is dangerous and have endeavored to secure compulsory pasteurization of all uncertified milk. This, however, has encountered some opposition from a source least expected—members of the medical profession. These men, in all good faith, appear to have felt that the arguments for pasteurization reflected on all raw milk, and to that extent endangered the advances secured in the production of certified raw milk. When arguments in favor of pasteurization have been advanced, certain individuals have retorted: "Pasteurization may be all very well, but, after all, isn't it simply a device to make dirty milk acceptable? You're going to gather up the milk from all these 'dirty little dairies,' pasteurize it, and send it out as safe milk to compete with our certified milk, which is produced at much pains and expense. Myself feel that certified raw milk may have its place, though it is questionable whether certified pasteurized milk should not be preferred. But surely there can be no question that the forty small dairies, practically unsupervised so far as concerns any health examination of employees, distributing 18,000 quarts of raw milk a day, constitute a serious menace to community health. In this connection it is interesting to note that the local Shriners' Hospital for Crippled Children reports 189 cases of bone tuberculosis in the last six years, practically all reacting to the bovine type, and therefore almost certainly milk borne. 1. Won't a milk-borne epidemic of any kind, originating in this raw milk, react unfavorably on all milk producers, including the certified dairies? 2. Wouldn't it be good medicine to urge pasteurization of all uncertified milk? 3. Wouldn't it be good business for the certified milk producers themselves to urge that all uncertified milk be pasteurized? 4. Isn't there some way in which the subject could be presented to the public so as to prevent the inference that pasteurization is intended as a substitute for cleanliness in production? This argument about the "dirty little dairies" is trotted out at every opportunity by the opponents of pasteurization. 5. Isn't there some common ground on which the certified milk producers could get together with the pasteurizers and work for safe milk? 6. What is the present consensus of medical opinion with regard to the desirability of compulsory pasteurization and the extent to which pasteurization will protect from milk-borne infections? 7. What, in a general way, is the present status of compulsory pasteurization in the United States? 8. What is the present consensus of medical opinion as to the transmission of undulant fever by raw milk? Has the Association of Medical Milk Commissions adopted any policy in this connection, regarding reactors found in certified herds? Recent tests have shown 35 per cent reactors to *Brucella abortus* in our certified herds.

THOMAS C. MCVEAGH, M.D., Honolulu, Hawaii.

ANSWER.—1. There seems little doubt that any milk-borne epidemic will react unfavorably on the consumption of milk in the community affected. It seems probable that the use of certified milk also would be affected.

2. It certainly would.

3. It would seem so.

4. Pasteurization is not intended to replace cleanliness. There is no reason to suppose that milk has become less clean since the advent of pasteurization. In fact, there is evidence that the quality of the milk supply of large cities in this respect has materially improved despite the general introduction of pasteurization.

5. It would seem that, since both the advocates of certified milk and of pasteurized milk have the common object of safeguarding the public health and improving nutritional conditions, they should and would cooperate in the application of specific methods.

6. It is the opinion of the majority of sanitarians at the present time that all milk not certified should be pasteurized. The evidence that many diseases can be spread by raw milk is overwhelming and can be found in any good textbook of public health and sanitation, such as Rosenau's Preventive Medicine and Hygiene or Park's Public Health and Hygiene. The best consensus is well expressed by Rosenau (Jordan and Falk: The Newer Knowledge of Bacteriology and Immunology, 1928, p. 417): "Theoretically, a pure milk is better than a purified milk. However, no one should drink raw milk that cannot be guaranteed by the health officer as safe and free from danger. Rash, indeed, would be the health officer who would give any raw milk a safe bill of health, for raw milk is likely to be infected by carriers, missed cases, or other unseen means."

7. In the larger cities, pasteurization of all uncertified milk is generally required. In the smaller towns and villages no such requirement is usually in force, although the actual amount of milk pasteurized in smaller communities is probably increasing.

8. Undulant fever may be transmitted by raw milk. Reactors in certified herds should of course be eliminated.

COD LIVER OIL — ENLARGED PROSTATE

To the Editor:—1. What substitutes are dependable for cod liver oil? Is Phyllamin any good? 2. Is there any worth-while medical or dietetic treatment for beginning enlargement of the prostate, or symptoms resulting from it? Has frequent or infrequent sexual activity any influence in causing or making less likely an enlarged prostate? Please omit name.

M.D., Indiana.

ANSWER.—1. Besides the brands of biologically tested cod liver oil that have been accepted, New and Nonofficial Remedies contains only a single cod liver oil concentrate; namely, oscodal. According to the advertising of Menley & James, Ltd., Phyllamin is "A Delectable Concentrated Tonic Nutriment" and "Presents Fresh Summer Spinach Juice Cold Expressed." The preparation is claimed to contain "Chlorophyll and all the known five Vitamin Factors" and to represent "all the Mineral salts of vegetables and fruits conserved in pure honey." As is the case with many of the proprietary preparations claimed to owe their value to the presence of vitamins, the advertising makes extreme claims for therapeutic qualities but contains nothing to indicate that determinations of the vitamin potency have actually been made. The preparation has not been accepted for New and Nonofficial Remedies.

2. There is no successful medical or dietetic treatment for inhibiting the progress of a true hyperplasia or the formation of adenoma of the prostate gland. However, it should be kept in mind that a supposed prostatic hypertrophy may be simulated by a chronic prostatitis or edema of the prostate concomitant with other nephritic or nephrotic edema. These instances, of course, are amenable to nonsurgical treatment.

DIPHTHERIA CARRIER

To the Editor:—A school boy, aged 17 years, having a severe case of atrophic rhinitis, was found to be a diphtheria carrier. He has been in quarantine for some months, he has had his tonsils removed, toxin-antitoxin and 10,000 units of antitoxin have been given, and still he has a positive report. Can you suggest any additional treatment?

GEORGE A. TRIPP, M.D., South Bend, Wash.

ANSWER.—There is no reason for expecting that toxin-antitoxin or antitoxin would have any effect so far as clearing up a diphtheria carrier. Carriers of virulent diphtheria bacilli are already immune. If not already done it might be well to test the bacilli for virulence, as carriers of nonvirulent diphtheroid bacilli are not infrequent. Locally the best results, after removal of abnormal tonsils and adenoids, are obtained by measures directed toward correcting abnormal secretions and alterations in the nasal mucosa and accessory sinuses.

REACTION TO VACCINATION AFTER SMALLPOX

To the Editor:—Can a person be successfully vaccinated within two weeks of complete recovery from smallpox?

F. S. WRIGHT, M.D., Salmon, Idaho.

ANSWER.—It would be unexpected if a patient two weeks after complete recovery from smallpox gave a typical reaction on vaccination in the ordinary way, because the patient would be immune to smallpox and hence to vaccination as a result of the acute attack. That exception to this sequence might occur in rare instances perhaps cannot be denied.

INGROWN HAIRS ON NECK

To the Editor:—Please let me know what is the recognized treatment for ingrown hairs on the neck.

M.D., Missouri.

ANSWER.—Ingrowing hairs on the neck or elsewhere are really uncommon. Most people that think they have them make trouble for themselves by working at the skin and simply pulling out the hair root of normally growing hairs. Dermatologists are consulted twenty-five or thirty times for ingrowing hairs where they find them once. The best treatment for most cases is the use of bland applications such as boric acid solution and talcum powder, or, perhaps, some ointment of rose water for the irritation of the neck that occurs after shaving, and let the hairs alone. In the few cases in which there are actually ingrowing hairs they should be let alone until their existence is unmistakably determined, and then they should be taken out by the physician.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

CONNECTICUT: New Haven, Basic Science, Feb. 8, 1930. State Board of Healing Arts, 1895 Yale Station, New Haven, Conn. Homeopathic, Jan. 14, 1930. Sec., Dr. E. C. M. Hall, 82 Grand Ave., New Haven, Conn.
DISTRICT OF COLUMBIA: Washington, Jan. 13, 1930. Health Officer, Dr. W. C. Fowler, District Bldg., Washington, D. C.
ILLINOIS: Chicago, Jan. 21-23, 1930. Supt., Mr. Paul B. Johnson, Springfield, Ill.
NATIONAL BOARD: Parts I and II, Feb. 12-14, 1930. In all centers where there are five or more candidates. Part III, New York City, Jan. 12-15, 1930. Dir., Mr. E. S. Elwood, 225 South Fifteenth St., Philadelphia, Pa.
NEBRASKA: Omaha, Feb. 4-6, 1930. Sec., Mr. Ernest M. Pollard, Lincoln, Neb.
NEW YORK: New York City, Albany, Syracuse, Buffalo, Jan. 27-30, 1930. Chief, Mr. H. J. Hamilton, Educational Bldg., Albany, N. Y.
PHILIPPINE ISLANDS: Manila, Feb. 11, 1930. Sec., Dr. Jose V. Gloria, 341 Ronquillo Station, Cruz, Manila, P. I.
SOUTH DAKOTA: Huron, Jan. 21-22, 1930. Dir., Dr. H. R. Kenaston, Bonesteel, S. D.
VERMONT: Burlington, Feb. 11-13, 1930. Sec., Dr. W. Scott Nay, Underhill, Vt.
WASHINGTON: Seattle, Jan. 13-14, 1930. Dir., Mr. Charles Maybury, Olympia, Wash.
WISCONSIN: Madison, Jan. 14-16, 1930. General Sec., Dr. Robert E. Flynn, 315 State Bank Bldg., La Crosse, Wis.

Michigan June Examinations

Dr. Guy L. Connor, former secretary of the Board of Registration in Medicine of the State of Michigan, reports the written examinations held at Ann Arbor, June 11-13, 1929, and Detroit, June 19-21, 1929. The examinations covered 14 subjects and included 100 questions. An average of 75 per cent was required to pass. Two hundred and forty-two candidates were examined, 241 of whom passed and 1 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
College of Medical Evangelists		(1929)	84.1, 86.1
University of California Medical School		(1929)	84.1
Yale University School of Medicine		(1926)	85.3
Howard University School of Medicine		(1926)	82
Loyola University School of Medicine		(1929)	87*
Northwestern University Med. School		(1929)	84,* 84.6, 84.8,* 86, 86.2
Tulane University of Louisiana School of Medicine		(1928)	86.9
Johns Hopkins University School of Medicine		(1923) (1926)	86.8, 86.1, (1927) 89.1
Harvard University Medical School		(1927)	86.2
Detroit College of Medicine and Surgery		(1929)	79.8,* 81.6,* 82.1,* 82.2, 82.6,* 83.7,* 83.8,* 83.8,* 83.9,* 83.9,* 83.9,* 84,* 84.2,* 84.3,* 84.6,* 84.6,* 84.7,* 84.7,* 84.7,* 84.8,* 84.8,* 84.8,* 84.9,* 85.2,* 85.4,* 85.4,* 85.5,* 85.5,* 85.5,* 85.6,* 85.6,* 85.9,* 86.1,* 86.1,* 86.2, 86.3,* 86.6,* 86.9,* 87,* 87.1,* 87.3,* 87.5,* 88.5 *
University of Michigan Medical School		(1927) (1928) 84.8, 86.9, (1929) 80.7,† 81.3, 81.5, 81.6, 81.6, 82, 82, 82, 82.1, 82.4, 82.5, 82.5, 82.6, 82.7, 82.8, 82.8, 82.8, 82.9, 83, 83, 83.1, 83.2, 83.3, 83.3, 83.4, 83.4, 83.4, 83.4, 83.5, 83.6, 83.6, 83.6, 83.7, 83.7, 83.7, 83.9, 83.9, 83.9, 84, 84, 84, 84.1, 84.1, 84.1, 84.2, 84.2, 84.2, 84.2, 84.2, 84.2, 84.3, 84.5, 84.5, 84.5, 84.5, 84.6, 84.6, 84.6, 84.6, 84.7, 84.7, 84.8, 84.8, 84.8, 84.8, 84.9, 84.9, 84.9, 84.9, 85, 85, 85, 85.1, 85.1, 85.1, 85.2, 85.2, 85.2, 85.3, 85.3, 85.3, 85.3,85.3, 85.3, 85.3, 85.4, 85.4, 85.4, 85.4, 85.4, 85.4, 85.5, 85.5, 85.5, 85.6, 85.6, 85.6, 85.6, 85.7, 85.8, 85.8, 85.8, 85.9, 85.9, 85.9, 86,† 86, 86, 86.1, 86.1, 86.1, 86.2, 86.2, 86.3, 86.3, 86.5, 86.5, 86.5, 86.6, 86.6, 86.6, 86.7, 86.7, 86.7 86.9, 86.9, 86.9, 87, 87.1, 87.1, 87.1, 87.1, 87.3, 87.3, 87.5, 88.3, 88.7, 89.5, 91.8	84.6,
St. Louis University School of Medicine		(1928) (1929) 85.8, 86.7, 87.3	86.2,
University of Nebraska College of Medicine		(1929)	82.8, 83
Cornell University Medical College		(1928)	86.4
Syracuse University College of Medicine		(1926)	84
University of Buffalo School of Medicine		(1923)	83.5
Meharry Medical College		(1908) 75, (1926) 79.6, (1928)	83.1, 84.6
Marquette University School of Medicine		(1928) (1929) 85.4, 87.1, 87.7	84.2,
McGill University Faculty of Medicine		(1925) 85.3, (1929)	87.1
Queen's University Faculty of Medicine		(1924) 86.8, (1927)	86.2
University of Manitoba Faculty of Medicine		(1916)	85.5
University of Toronto Faculty of Medicine		(1918) 83.8, (1925) 82.2, (1926) 84.8, 85, 85.9, (1928) 85.3, 87	84.7,
University of Western Ontario Faculty of Medicine		(1916) 84.6, (1917) 84.5, (1924) 84.4, (1925) 86.7, (1929) 85.6	85.9,
University of St. Thomas Faculty of Med. and Surg.		(1926)	83.6

College	FAILED	Year Grad.	Per Cent
Michigan College of Medicine and Surgery		(1906)	60.7

* These applicants have completed four years of medical work and will receive their M.D. degrees on completion of one year's internship in a hospital.

† These applicants completed a four years' medical course in 1929, but their degrees were withheld until the applicants pass a comprehensive examination. License will be granted one year after the date the applicant receives the M.D. degree.

Medical Economics

THE PHYSICIAN'S INCOME TAX—1930

The taxpayer who is required to make a return must do so on or before March 15, unless an extension of time for filing the return has been granted. For cause shown, the collector of internal revenue for the district in which the taxpayer files his return may grant such an extension, on application filed with him by the taxpayer. This application must contain a full recital of the causes for the delay. Failure to make a return may subject the taxpayer to a penalty of 25 per cent of the amount of the tax due.

The normal rate of tax on individual citizens or residents of the United States, under Public Resolution 23, approved Dec. 16, 1929, is 0.5 per cent on the first $4,000 of net income in excess of the exemptions and credits, 2 per cent on the next $4,000, and 4 per cent on the remainder.

WHO MUST FILE RETURNS

1. Returns must be filed by every person having a *gross* income of $5,000 or more, regardless of the amount of his net income or his marital status. If the aggregate gross income of husband and wife, living together, was $5,000 or more, they must file a joint return or separate returns, regardless of the amounts of their joint or individual net incomes.

2. If *gross* income was less than $5,000, returns must be filed (*a*) by every unmarried person, and by every person married but not living with husband or wife, whose *net* income was $1,500 or more, and (*b*) by every married person, living with husband or wife, whose *net* income was $3,500 or more. If the aggregate net income of husband and wife, living together, was $3,500 or more, each may make a return or both unite in a joint return.

If the marital status of a taxpayer changed during the tax year, the amount of income necessary to bring him within the class required to make returns should be ascertained by inquiry of the local collector of internal revenue.

As a matter of courtesy only, blanks for returns are sent to taxpayers by the collectors of internal revenue, without request. Failure to receive a blank does not excuse any one from making a return; the taxpayer should obtain one from the local collector of internal revenue.

The following discussion covers matters relating specifically to the physician. Full information concerning questions of general interest may be obtained from the official return blank or from the collectors of internal revenue.

GROSS AND NET INCOMES: WHAT THEY ARE

Gross Income.—A physician's gross income is the total amount of money received by him during the year from professional work, regardless of the time when the services were rendered for which the money was paid, plus such money as he has received as profits from investments and speculation, and as compensation and profits from other sources.

Net Income.—Certain professional expenses and the expenses of carrying on any enterprise in which the physician may be engaged for gain may be subtracted as "deductions" from the gross income, to determine the net income on which the tax is to be paid. An "exemption" is allowed, the amount depending on the taxpayer's marital status during the tax year, as stated before. These matters are fully covered in the instructions on the tax return blanks.

Earned Income.—In view of the credit of 25 per cent allowed on *earned* net income, the physician should state accurately the amount of such income as distinguished from his receipts from other sources. *Earned* income means professional fees, salaries and wages received as compensation for personal services rendered. From this, in the computation of the tax, must be

subtracted certain "earned income deductions." The difference is the "earned net income."

The first $5,000 of an individual's net income from all sources may be claimed, without proof, to be *earned* net income, whether it was or was not in fact *earned* within the meaning set forth in the preceding paragraph. Net income in excess of $5,000 may be claimed as *earned* if it in fact comes within that category. However, a taxpayer may not claim, as *earned*, net income in excess of $30,000.

The conditions relating to the computation of the tax on earned income are too elaborate to be stated here. In case of doubt, physicians should consult collectors of internal revenue.

DEDUCTIONS FOR PROFESSIONAL EXPENSES

A physician is entitled to deduct all current expenses necessary in carrying on his practice. The following statement shows what such deductible expenses are and how they are to be computed:

Office Rent.—Office rent is deductible. If a physician rents an office for professional purposes alone, the entire rent may be deducted. If he rents a building or apartment for use as a residence as well as for office purposes, he may deduct a part of the rental fairly proportionate to the amount of space used for professional purposes. If the physician occasionally sees a patient in his dwelling house or apartment, he may not, however, deduct any part of the rent of such house or apartment as professional expense; to entitle him to such a deduction he must have an office there, with regular office hours. If a physician owns the building in which his office is located, he cannot charge himself with "rent" and deduct the amount so charged.

Office Maintenance.—Expenditures for office maintenance, as for heating, lighting, telephone service and the services of attendants, are deductible.

Supplies.—Payments for supplies for professional use are deductible. Supplies may be fairly described as articles consumed in the using; for instance, dressings, clinical thermometers, drugs and chemicals. Professional journals may be classified as supplies, and the subscription price deducted. Amounts currently expended for books, furniture and professional instruments and equipment, "the useful life of which is short," may be deducted; but if such articles have a more or less permanent value, their purchase price is a capital expenditure and is not deductible.

Equipment.—Equipment comprises property of more or less permanent value. It may ultimately be used up, deteriorate or become obsolete, but it is not in the ordinary sense of the word "consumed in the using"; rather, it wears out.

Payments for equipment or nonexpendable property for professional use cannot be deducted. As property of this class may be named automobiles, office furniture, medical, surgical and laboratory equipment of permanent value, and instruments and appliances constituting a part of the physician's professional outfit and to be used over a considerable period of time. Books of more or less permanent value are regarded as equipment, and the purchase price is therefore not deductible.

Although payments for equipment or nonexpendable articles cannot be deducted, yet from year to year there may be charged off against them reasonable amounts as depreciation. The amounts so charged off should be sufficient only to cover the lessened value of such property through obsolescence, ordinary wear and tear, or accidental injury. If improvement to offset obsolescence and wear and tear or injury has been made, and deduction for the cost claimed elsewhere in the return, claim should not be made for depreciation.

A hard and fast rule cannot be laid down as to the amount deductible each year as depreciation. Everything depends on the nature and extent of the property and on the use to which it is put. Five per cent a year has been suggested as a fair amount for depreciation on an ordinary medical library. Depreciation on an automobile would obviously be much greater. The proper allowance for depreciation of any property is that amount which should be set aside for the tax year in accordance with a reasonably consistent plan, not necessarily at a uniform rate, whereby the aggregate of the amounts so set aside, plus the salvage value, will at the end of the useful life of the property in the business equal the purchase price of the property or, if purchased before March, 1913, its estimated value as of that date or its original cost, whichever may be the greater. The physician must in good faith use his best judgment and make such allowance for depreciation as the facts justify. Physicians who, from year to year, claim deductions for depreciation on nonexpendable property will do well to make annual inventories, as of January 1, each year.

Medical Dues.—Dues paid to societies of a strictly professional character are deductible. Dues paid to social organizations, even though their membership is limited to physicians, are personal expenses and not deductible.

Postgraduate Study.—The Commissioner of Internal Revenue holds that the expense of postgraduate study is not deductible.

Traveling Expenses.—Traveling expenses, including amounts paid for transportation, meals and lodging, necessarily incurred in professional visits to patients and in attending medical meetings for a professional purpose, are deductible.

AUTOMOBILES

Payment for an automobile is a payment for permanent equipment, and is not deductible. The cost of operation and repair, and loss through depreciation, are deductible. The cost of operation and repair includes the cost of gasoline, oil, tires, insurance, repairs, garage rental (when the garage is not owned by the physician), chauffeurs' wages, etc.

Deductible loss through depreciation is the actual diminution in value resulting from obsolescence and use, and from accidental injury against which the physician is not insured. If depreciation is computed on the basis of the average loss during a series of years, the series must extend over the entire estimated life of the car, not merely over the period in which the car is in the possession of the present taxpayer.

If the automobile is used for professional and also for personal purposes—as when used by the physician for recreation, or used by his family—only so much of the expense as arises out of the use for professional purposes may be deducted. A physician doing an exclusive office practice and using his car merely to go to and from his office cannot deduct depreciation or operating expenses; he is regarded as using his car for his personal convenience and not as a means of gaining a livelihood.

What has been said with respect to automobiles applies with equal force to horses and vehicles and the equipment incident to their use.

MISCELLANEOUS

Laboratory Expenses.—The deductibility of the expenses of establishing and maintaining laboratories is determined by the same principles that determine the deductibility of other corresponding professional expenses. Laboratory rental and the expenses of laboratory equipment and supplies and of laboratory assistants are deductible when under corresponding circumstances they would be deductible if they related to a physician's office.

Losses by Fire, etc.—Loss of and damage to a physician's equipment by fire, theft or other cause, not compensated by insurance or otherwise recoverable, may be computed as a business expense, and is deductible, provided evidence of such loss or damage can be produced. Such loss or damage is deductible, however, only to the extent to which it has not been made good by repair and the cost of repair claimed as a deduction.

Insurance Premiums.—Premiums paid for insurance against professional losses are deductible. This includes insurance against damages for alleged malpractice, against liability for injuries by a physician's automobile while in use for professional purposes, and against loss from theft of professional equipment, and damage to or loss of professional equipment by fire or otherwise. Under professional equipment is to be included any automobile belonging to the physician and used for strictly professional purposes.

Expense in Defending Malpractice Suits.—Expenses incurred in the defense of a suit for malpractice are deductible as business expense. Expenses incurred in the defense of a criminal action, however, are not deductible.

Sale of Spectacles.—Oculists who furnish spectacles, etc., may charge as income money received from such sales and deduct as an expense the cost of the article sold. Entries on the physician's account books should in such cases show charges for services separate and apart from charges for spectacles, etc.

Book Notices

THE PATHOLOGY OF THE EYE. By Jonas S. Friedenwald, A.M., M.D., F.A.C.S., Associate in Pathological Ophthalmology at the Johns Hopkins University. Cloth. Price, $4.50. Pp. 346, with 253 illustrations. New York: Macmillan Company, 1929.

In the preface, the author says: "This book is the outcome of a course of lectures first prepared some years ago for the instruction of medical students and house officers in the department of ophthalmology of Johns Hopkins Medical School. He has attempted to group together reactions of the various parts of the eye to similar injuries and disease processes and to point out, wherever the analogy seemed apt, the similarity between ocular disease and disease of other organs." To that end, the book is divided into fifteen main chapters, covering the various phases of ocular injuries and disease. The various points are stressed by the illustrations, which really illustrate the points in question and are not inserted merely for ornamentation. The reproductions of photographs are excellent. The author has approached the difficult matter of a dry textbook on ophthalmic pathology in a refreshing manner and has produced a book that is a real joy. The clinical phases of ophthalmology are interlarded with histopathologic descriptions and embellished with bits of philosophy and cynicism. Too much stress is not laid on the clinical side, nor is the trend of thought broken by too much cellular pathology with unproved clinical deductions, as is only too frequently the case with laboratory workers. On the contrary, there is an even balance maintained, so that there is shown on the same screen the clinical picture and the histologic picture. In addition to the well established facts of ocular pathology, the author has included some unpublished investigative work of his own (nine different arbeits in all) that bids fair to be included in future textbooks. All in all, the ophthalmic field must welcome this newcomer as a valuable addition which will have a well deserved place in the library of every ophthalmologist.

HANDBUCH DER PATHOGENEN MIKROORGANISMEN. Herausgegeben von W. Kolle, R. Kraus, und P. Uhlenhuth. Lieferung 32, Band VIII. Darmflagellaten des Menschen und verwandte Arten. Von Prof. Dr. V. Jollos. Darminfusorien des Menschen. Von Prof. Dr. V. Jollos. Coccidiosen. Von Prof. Dr. V. Jollos. Chlamydozoen-Strongyloplasmenbefunde bei Infektionen mit filtrierbaren Erregern. Von Dr. B. Lipschütz. Das gelbe Fieber. Von Prof. Dr. W. H. Hoffmann. Third edition. Paper. Price, 30 marks. Pp. 213-500, with 80 illustrations. Jena: Gustav Fischer, 1929.

The first part of this issue, comprising ninety-eight pages, is a series of articles by Jollos on the intestinal flagellates, ciliates and coccidia of man and related species from animals. The several reviews and especially the tabulated lists of species will be particularly helpful to protozoologists. The author's summary is comprehensive and contains a full consideration of the literature; he has not fallen into the error, noticeable in some of the other sections of the Handbuch, of limiting his consideration largely to German authors. The chief criticism is that some species, the validity of which is questioned by most protozoologists, are apparently accepted by him without further qualification. Another article, comprising 108 pages, by Lipschütz, is devoted to "inclusion bodies" found in cells of animals and plants affected with certain filtrable virus diseases. The author divides filtrable viruses into two classes: the group with invisible incitants and the group with microscopically demonstrable chlamydozoa and strongyloplasmata. The latter are taken by him to be the causative agents in thirty-seven diseases of plants and animals, although for some of them no filtration tests have been performed and their inclusion as filtrable viruses is based solely on the presence of "inclusion bodies." The inclusion bodies characterizing these diseases are classified on the basis of the cell organelles in which they arise or reside. The review consists of a general and a special part. The former is devoted to definition of the concepts of filtrable viruses and of chlamydozoa-strongyloplasmata and an historical survey of the development of these concepts; technic of microscopic demonstration of chlamydozoa-strongyloplasmata; morphology, size and development of strongyloplasmata; diagnosis of strongyloplasmata; their rôle in infection; critical examination of the concept chlamydozoa-strongyloplasma, and micro-diagnosis of filtrable viruses. The special part is devoted to a detailed discussion, primarily of microscopic data, relative to filtrable virus diseases which are not taken up separately in other parts of the Handbuch. The article on yellow fever by Hoffmann of Havana wisely minimizes the historical aspects of the subject and is devoted chiefly to a discussion of recent investigations, in which, of course, the West African studies hold a conspicuous place. The plates illustrating the life history of *Aedes* leave little to be desired.

UROLOGICAL NURSING. By David M. Davis, M.D., Assistant Professor of Urological Surgery, University of Rochester. Cloth. Price, $2.25 net. Pp. 172, with 61 illustrations. Philadelphia: W. B. Saunders Company, 1929.

The author endeavored to collect and present all the items that must be known and observed in successful genito-urinary nursing, and it may be unreservedly stated that he has succeeded. While the chapters on anatomy, physiology and pathology are of a sketchy character, they nevertheless contain all the information necessary to furnish the basis for intelligent nursing in genito-urinary work. This booklet is another cornerstone in the edifice of American nursing.

MOVABLE KIDNEY: Its Etiology, Pathology, Diagnosis, Symptoms and Treatment. By William Billington, M.S., Ch.M., F.R.C.S., Senior Surgeon, Queen's Hospital, Birmingham. Second edition. Cloth. Price, 12s. 6d. net. Pp. 177, with 14 plates. London: Cassell & Company, Ltd., 1929.

The interest in this book lies in the extensive experience of the author in nephropexy, an experience of 1,500 operations. He believes that a widely diversified clinical picture, ranging from neurasthenia and mental inadequacy to gastro-intestinal and sexual malfunction, may be due to abnormally mobile kidneys. This point of view is not so widely accepted by other surgeons and urologists. The text includes chapters on anatomy, etiology, pathology, symptoms, diagnosis and treatment. The author's technic consists in fixation with a triangular flap of kidney capsule. The text is written in interesting and readable style but is sparsely and poorly illustrated.

SURGICAL DISEASES OF THE THYROID GLAND. By E. M. Eberts, M.D., Surgeon to the Montreal General Hospital. With the assistance of R. R. Fitzgerald, M.D., and Philip G. Silver, M.D. Cloth. Price, $3.50 net. Pp. 238, with 48 illustrations. Philadelphia: Lea & Febiger, 1929.

This is the result of a coordinated study of patients with goiter by a group of men in various specialties. The patients were treated as a separate clinic in a large general hospital; 1,050 of 2,250 patients observed were treated surgically. In the first part of the book, embryology is reviewed, with the latest accepted mode of development of the thyroid gland. The anatomy is described briefly, together with the histology. Normal and pathologic physiology are discussed with an avoidance of detail concerning many of the unsolved problems. Gross and microscopic pathologic changes are clearly described. The second part includes the study of the material observed. A clinical classification is followed with a study of the patients,

falling in each group. This includes juvenile goiter, late colloid goiter, exophthalmic goiter, iodine thyrotoxicosis, nontoxic and toxic adenomas, inflammations, and malignant disease of the thyroid gland. A few illustrative case reports are included under the discussion of each heading following that on etiology, symptoms and treatment. The sections on operative treatment with its complications requiring knowledge and judgment are disappointingly brief. Other discussions on important points are also too short, although this may be an advantage if the book is used as a textbook for the student. The bibliography is wisely included at the end of each chapter. Reproductions of photographs illustrate almost every subject of importance. The book is a decided step in standardizing and in presenting clearly the recent experimental and clinical studies on goiter, by those eminently qualified through practical experience, as shown by their clinical statistics.

FOURSQUARE: THE STORY OF A FOURFOLD LIFE. By John Rathbone Oliver. Cloth. Price, $2.50. Pp. 305. New York: Macmillan Company, 1929.

This is a series of essays on various aspects of the author's experience. He has been a versatile man: first a clergyman of the Episcopal Church, then for twenty-five years a physician—a psychiatrist chiefly engaged as court adviser in criminal cases in Baltimore—psychiatrist at Johns Hopkins Hospital, professor of the history of medicine at the University of Maryland, then restored to orders in the church and, finally, a sort of father-confessor to the Johns Hopkins students as warden of the Alumni Memorial Hall. He writes in this book of his experiences of men and of his views of life in all these relations. His interest is chiefly in man as a social animal. The work is that of a man who is alert, with a wide range of interests and capacities, wholesomely optimistic and altogether amiable. He is sane and sympathetic and, whatever his topic, his views are reasonable and appealing. He has an easy style. His introductory chapter, "My Great-Uncle Henry," is worthy of Barrie, and, always, the style is pleasing. It is a sort of "Reveries of a Bachelor" in medicine. Any one can spend agreeable evenings in its reading.

UEBER DEN KAISERSCHNITT ZUR ASEPTISCHEN GEBURT. Von Dr. Heinrich Doerfler. Price, 5.50 marks. Pp. 178. Munich: J. F. Lehmanns Verlag, 1929.

This monograph is in reality an elaboration of articles which the author has recently written and is a plea for an increase in the performance of cesarean section. The author urges that all labors be made aseptic and he believes that the most satisfactory way of accomplishing this is by means of cesarean section. The latter operation he considers absolutely safe for the child and almost as safe for the mother but it should be done only by experienced operators. The author prefers the intraperitoneal cervical cesarean section. Since 1897 he has performed 418 operations and he says that his maternal mortality was only 0.75 per cent; since there were four maternal deaths, however, the mortality was 0.95 per cent. All of the fatalities occurred in the last 206 cases, among which were many "unclean" ones. There was not a single death among the first 212 cases, all of which were "clean." The indications for cesarean section, according to Doerfler, are contracted pelvis; eclampsia; placenta praevia; instead of induction of premature labor; in place of version when the cervix is not completely dilated; to replace version and extraction in some cases in which the cervix is fully dilated; abnormal cephalic presentations; postmaturity; unusually long labor; breech presentation; and in cases of tuberculosis, nephritis, heart disease and the like. The book was evidently written to support Max Hirsch's contention that the best way to reduce the present high maternal death rate is to increase considerably the number of cesarean sections. Hirsch believes that this operation should be substituted for all vaginal operative procedures except low forceps. The ideas advanced by both Hirsch and Doerfler are unusually radical. Whereas experienced obstetricians may have a low maternal mortality for cesarean section, the ideas expressed in the book are pernicious because too large a proportion of abdominal deliveries are performed by individuals whose experience with this operation is limited and whose results are therefore bad. Cesarean section is by no means a harmless operation and it should be performed only for proper indications.

Medicolegal

Malpractice; Unrecognized Pregnancy; Abdominal Section; Miscarriage

(Haskins v. Howard (Tenn.), 16 S. W. (2d) 20)

The patient, aged 26, was married and the mother of several children, the youngest of whom was 17 months old. When she consulted the defendant, she told him that her last previous menstruation had occurred four months before and that she was not sure that she was not pregnant. She was examined at home and later examined more thoroughly at the hospital, and an operation was advised for the removal of an ovarian tumor. When she had been etherized, the defendant "undertook to correct cervical lacerations by the application of a cauterizing instrument, and then made an abdominal incision." He found pregnancy three or three and one-half months advanced and thereupon closed the incision. Testimony on behalf of the patient was to the effect that the defendant stated that he found pregnancy but no tumor, but the defendant and his assistant testified that they found a small tumor, which the pregnancy made it inadvisable to remove. Bleeding began before the patient left the hospital and grew continuously worse until her miscarriage on the fifteenth day after the operation.

In the suit that followed it was conceded that the defendant possessed the skill and ability ordinarily possessed by men engaged in the practice of medicine and surgery in the location in which the operation had been done. The declaration averred, however, that the operation was unnecessary and was performed because of a mistake, due to unskilfulness, carelessness, and negligence, in improperly diagnosing the patient's condition. The defendant himself testified that he was "apprehensive" of pregnancy when he operated and that he was "not one hundred per cent sure she was not pregnant." Both he and his assistant testified that they would not have operated if they had known of the existence of pregnancy. The patient, the defendant testified, was in no danger of death, but because she was suffering and sought relief and because she was at some expense in the hospital and her folks were poor people, he did not delay the operation. Neither the patient nor her husband was told that the defendant had any apprehension of pregnancy, and their consent to an operation was based on the defendant's statement that he was positive that she was suffering from a tumor. The trial resulted in a verdict for the patient, which was sustained by the court of appeals. Thereupon the case was carried by writ of certiorari to the supreme court of Tennessee, where the judgment of the courts below was affirmed.

There was abundant evidence to show than an operation on a pregnant woman is likely to cause miscarriage and evidence that such a result usually follows within three or four days. The miscarriage occurred in this case fifteen days after the operation, but there was sufficient evidence, said the supreme court, to sustain the finding that the operation, and particularly the cauterization of the cervix, caused it. Through hypothetical questions submitted to surgeons, testifying as experts, the defendant tried to show that he was not negligent; but the value of this evidence was destroyed by failure to include in the hypothesis submitted to those witnesses the fact that the defendant, when he operated, entertained an apprehension of pregnancy. There was no evidence to show that it was not negligence for a surgeon to operate for a suspected tumor while entertaining an apprehension of pregnancy and when delay would confirm or dispel his apprehensions without endangering the life of the patient. There was no evidence to show what other physicians, entertaining an apprehension of pregnancy, would have done in the circumstances proved; but the jury, as men of ordinary experience and affairs, were qualified to draw their own inferences and to reach their own conclusions without the testimony of experts. The jury were justified in holding the defendant negligent in acting on a too hasty, and therefore incomplete and improper, diagnosis. Whether the defendant could or could not have protected himself from the imputation of negligence by laying before the plaintiff and her husband the facts within his knowledge, including his apprehension of pregnancy and the consequent hazard of the proposed operation, and

leaving to them the decision whether he should operate or delay until the diagnosis could be made certain, was not before the court for decision, as the defendant did not claim to have communicated to the plaintiff or her husband the uncertainty of his diagnosis.

The defendant complained that the jury were instructed that they were not bound to accept the testimony of expert witnesses but should weigh it as they would the testimony of other witnesses. The defendant contended that under this instruction the jury might disregard the expert testimony of physicians as to what is proper practice in diagnosis, operation, and treatment. The jury should have been instructed, he asserted, that they were bound by the testimony of experts on such questions. The instruction given, however, was in substantial accord with that previously approved by the supreme court of Tennessee. It was, moreover, at least doubtful whether any other instruction would not be prohibited by the provision of the state constitution that judges shall not charge juries with respect to matters of fact, which is intended to preserve to the jury the right to determine what facts are proved in a cause.

Compulsory Eugenic Sterilization: Inadequate Evidence

(Davis, Warden, v. Walton (Utah), 276 P. 921)

Walton, an unmarried negro, aged 19, was committed to the Utah State Prison, Nov. 5, 1925, for robbery. Prior to the offense for which he was imprisoned, he had never been convicted of a crime. He admitted frequent illicit intercourse with women. After he had been in the prison about eighteen months, on May 24, 1927, the state board of corrections ordered that Walton be asexualized. The district court of Salt Lake County affirmed the order, and Walton appealed to the supreme court of Utah. When the case was appealed to the district court, a physician testified that Walton was in good health and that his general health would not be impaired by asexualization. A prison guard testified that on Nov. 18, 1927, about six months after the state board of corrections had ordered asexualization, he saw Walton in the act of sodomy and that he had frequently seen him act "lovingly" toward other boys confined in the prison. When and where the guard gave this testimony does not appear in the record, and Walton denied it and, as far as sodomy was concerned, so did Walton's alleged partner in the act. The state board of corrections, when it made its order for asexualization, did not have, nor did it seek, the aid of persons trained in the diagnosis and treatment of those disorders that, under the statutes (Laws of Utah, 1925, chapter 82), must exist before an order for asexualization can lawfully be made; it undertook unaided to determine the presence or absence of such disorders.

Walton contended that the eugenic sterilization law of Utah was unconstitutional because it imposed a cruel and unusual punishment, and cases were cited in support of that contention. The supreme court of Utah pointed out, however, that the law does not provide for asexualization as a punishment but solely for eugenic and therapeutic purposes; it must be shown, not only that it can be done without detriment to the general health of the person asexualized and that it is for the welfare of society, but also affirmatively that it is for his welfare. If the welfare of an inmate of a public institution demands an operation, said the court, we know of no constitutional provision, either state or federal, that prohibits the legislative branch of the government from directing that such operation be performed without the consent or against the will of the person to be operated on. Walton contended further that the Utah act was unconstitutional class legislation, because it authorized the asexualization of persons who are inmates of public institutions and who thus are segregated and prevented from procreation, while at the same time it makes it a felony to asexualize persons of the very same class, except with respect to incarceration, who, being at liberty, can procreate without legal limitation. A Virginia statute (Acts of Virginia, 1924, chapter 394), however, similar to the Utah statute, was sustained by the United States Supreme Court in *Buck* v. *Bell*, 47 Sup. Ct. 584. The Virginia statute, it is true, does not make it a crime to operate on a person to destroy his power of procreation, as the Utah statute does, but the supreme court of Utah thought that this difference was not controlling, and, following the decision of the United States Supreme Court in the case cited, refused to hold the Utah statute unconstitutional.

But Walton's contention that the evidence before the state board of correction and the district court of Salt Lake City was not sufficient to justify the asexualization order was sustained by the supreme court. Members of judicial tribunals, said the supreme court, are not well informed as to the laws of heredity. Even though they may be so informed, they could not take judicial notice of the supposed fact that if Walton should have offspring such offspring would be socially inadequate. Probably even the most ardent advocate of the immutability of the laws of heredity would hardly wish to determine the probable nature of Walton's offspring without having more facts than were presented to the court in the record. The record did not support the finding that "by the law of heredity Esau Walton is the probable potential parent of socially inadequate offspring likewise afflicted." There was no evidence to show what physical ailment, if any, Walton had that would probably be cured by the proposed operation and that the proposed operation would relieve him of abnormal sexual desire, nor was any of the three proposed methods of sterilization, namely, vasectomy, castration, and cutting "the nerves that control the penis," shown to be the method best calculated to accomplish the purpose sought. Moreover, the particular operation to be performed might well be of vital interest to Walton as well as to society, and he therefore is entitled to be heard, not only as to whether he shall or shall not be asexualized, but also as to what particular operation, if any, shall be performed. The kind of operation to be performed should be specified in the order, and the order before the supreme court did not so specify. The order appealed from was therefore reversed and the cause remanded to the board of corrections for further proceedings.

Malpractice: Standards of Care and Skill Required of Specialists; Admissibility of Prints from Roentgenographic Plates.—Where the petition does not charge that the defendant held himself out as a specialist but charges only that he was a duly licensed and practicing physician and surgeon, and the issues on trial do not involve the determination as to whether he held himself out as having special knowledge and skill, it is not error to refuse to instruct the jury as to the standards of knowledge and skill required of physicians and surgeons holding themselves out as specialists. While a specialist is held to the exercise of more skill and the possession of more knowledge than is a general practitioner, he is not held to the exercise of a special degree of care but only to ordinary care under all of the circumstances of the case. It is not prejudicial error to exclude prints made from roentgenographic plates when the plates themselves are already in evidence and the testimony shows that the plates are more accurate than the prints.—*Beach v. Chollett (Ohio), 166 N. E. 145.*

Wills: Not to Be Drafted by Nurses.—It is unwise for a nurse to draw wills for her patients. Such excursions into the field of law should be discouraged. The relation between patient and nurse is highly confidential. Under such conditions the opportunity for fraud and undue influence is too great for safety. The old adage that "a shoemaker should stick to his last" still has its application. The drafting of wills had better be left to the legal profession.—*In re Stegman's Estate (N. Y.), 234 N. Y. S. 239.*

Society Proceedings

COMING MEETINGS

American College of Physicians, Minneapolis, February 10-17. Mr. E. R. Loveland, 133 South 36th Street, Philadelphia, Executive Secretary.
American Heart Association, New York, February 3. Dr. I. C. Riggin, 370 Seventh Avenue, New York, Executive Secretary.
American Orthopsychiatric Association, New York, February 21-22. Dr. George S. Stevenson, 370 Seventh Avenue, New York, Secretary.
Pacific Coast Surgical Association, Del Monte, Calif., February 7-8. Dr. E. L. Gilcreest, 384 Post Street, San Francisco, Secretary.
Tri-States Medical Association of Mississippi, Arkansas and Tennessee, Memphis, Tenn., January 14-16. Dr. A. F. Cooper, Bank of Commerce Building, Memphis, Tenn., Secretary.

Current Medical Literature

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Titles marked with an asterisk (*) are abstracted below.

American J. Ophthalmology, Chicago

12: 949-1042 (Dec.) 1929

Status of Food Poisoning in Relation to Ophthalmology. C. M. Swab, Omaha.—p. 949.

Congenital Coloboma of Upper Eyelid with Dermoids on Cornea: Case. W. D. Horner and F. C. Cordes, San Francisco.—p. 959.

Causes and Prevention of Blindness in Colorado. E. Jackson, Denver. —p. 965.

Perforating Injuries of Eye by Small Steel Fragments. H. L. Begle, Detroit.—p. 970.

Dendritic Keratitis Following Therapeutic Inoculation of Malaria. W. C. Finnoff, Denver.—p. 978.

Lipemia Retinalis in Diabetic. C. E. Shannon and H. K. Mohler, Philadelphia.—p. 980.

History of My Glaucomatous Illness. L. Laqueur.—p. 984.

Blue Sclerotics: Case. A. A. Knapp, New York.—p. 990.

Diplopia: Unusual Case. L. P. Glover, Altoona, Pa.—p. 991.

American J. Physical Therapy, Chicago

6: 386-432 (Dec.) 1929

Colonic Therapy. W. W. Worster, San Gabriel, Calif.—p. 391.

Ultraviolet Light in Rickets. W. Vignal, Paris, France.—p. 395.

Diathermy: Use in Gonococcal Infections of Female. W. S. Pugh, New York.—p. 398.

Wonders of Electricity. E. N. Kime, Indianapolis.—p. 403.

Intracranial Tumor Treated by Roentgentherapy. J. E. Gendreau, Montreal, Canada.—p. 411.

Electrotherapy in Infantile Paralysis. Drs. Delherm and Laquierriere, Paris, France.—p. 416.

American Review of Tuberculosis, Baltimore

20: 833-953 (Dec.) 1929

*Experimental Pneumonokoniosis: V. Reactivation of Healing Primary Tubercles in Lung by Inhalation of Quartz, Granite and Carborundum Dusts. L. U. Gardner, Saranac Lake, N. Y.—p. 833.

*Changes in Finger Nails in Pulmonary Tuberculosis: Pitting (Depressions) and Relationship to Active Disease. A. G. Hahn, Trudeau, N. Y.—p. 876.

*Duration of Fatal Phthisis. H. L. Barnes and L. R. P. Barnes, Wallum Lake, R. I.—p. 895.

*Effect of Parathyroid Extract and Calcium on Calcification and Healing in Pulmonary Tuberculosis. B. Gordon and A. Cantarow, Philadelphia.—p. 901.

*Effects of Glycerin and Old Tuberculin on Blood of Normal Guinea-Pigs Compared with Effects of Small Amounts of Tuberculin Before and After Inoculation with Living Tubercle Bacilli. E. H. Tompkins, Nashville, Tenn.—p. 908.

*Blood Calcium Content in Pulmonary Tuberculosis. V. B. Dolgopol, New York.—p. 931.

Susceptibility of Hamster (Chinese Field Mouse) to Tubercle Bacillus. G. Y. C. Lu, Peiping, China.—p. 938.

Reactivation of Healing Primary Tubercles in Lung by Inhalation of Quartz, Granite and Carborundum Dusts.—Gardner demonstrated experimentally that the inhalation of quartz, carborundum and granite dust will stimulate a renewed multiplication of bacilli in healing tubercles, an effect which is often followed by widespread chronic ulcerative tuberculosis. All the manifestations of that condition seen in man, with the exception of caseous pneumonia, have been encountered. At least two months' exposure to the dusts is necessary to affect the primary foci of infection, and usually more time is required. Reactivation of primary tubercles has occurred as late as 206 or even 400 days after infection. With quartz, 73.6 per cent of the animals exhibited evidence of progressive tuberculosis; with carborundum there were 31.8 per cent, and with granite only 26.3 per cent. This result has not been obtained by the inhalation of all types of dust. Marble and soft coal have exhibited no stimulating effect. The reaction appears to be a specific result of the inhalation of certain definite types of dust, for evidence has been produced to show that such factors as overcrowding, lack of proper ventilation and light, endemic pneumonia and nonspecific inflammations have not influenced this type of tuberculous infection.

Changes in Finger Nails in Pulmonary Tuberculosis.—Pittings or depressions in the finger nails were observed by Hahn in 100 per cent of a group of patients suffering from active pulmonary tuberculosis, as compared with 6 per cent of a group of patients who had been inactive for a relatively short period, and a third group of inactive cases (without symptoms of activity for from one to twenty-five years) in whom this change was found to be absent in 100 per cent of the cases studied. Therefore, in his opinion the occurrence of these characteristic pittings in a known case of pulmonary tuberculosis should be regarded as indicative of recently active tuberculous disease provided no other disease is present. Hippocratic incurvation was found in 76 per cent of the active tuberculous group, 50 per cent of the inactive tuberculous group and 30 per cent of the ex-patient workers at the sanatorium. This change did not occur in any of the nontuberculous controls (presumably normal individuals). Cyanosis of the finger nails was noted in 66 per cent of the active group as against only 2 per cent of the inactive or chronic group. This change was well marked in all cases in which the disease was rapidly advancing, as evidenced by clinical symptoms and roentgenographic studies. From these observations Hahn believes that cyanosis may be of value in prognosis. Ridging seems to be of less importance than the other changes described.

Duration of Fatal Phthisis.—The average duration of life for 1,567 phthisical males, the Barneses state, was 37.93 months, for the 970 females 34.81 months, and for the 2,537 patients 36.72 months. The average duration of life of 2,424 white patients was 37.81 months, against 19.59 months for 111 colored patients and 44.50 months for two yellow patients. One thousand and twenty-six patients who had had hemoptysis previous to or during sanatorium residence survived periods averaging 43.37 months, while 1,496 patients with no history of hemoptysis previous to death or discharge from the institution survived for periods averaging only 32.29 months. Fifteen patients, for whom there was no record as to whether hemoptysis had occurred, survived for periods averaging 26.06 months. The average duration of life for fifty-one patients with a history of pleurisy with effusion, if the onset is dated from the onset of pleurisy, was fifty-one months. Twelve of these patients recovered from the pleurisy and had an interval of apparent health averaging sixty-one months before developing symptoms of pulmonary disease. If the duration of these fifty-one cases is taken from the onset of continuous pulmonary disease, the average duration was thirty-seven months.

Effect of Parathyroid Extract and Calcium on Calcification and Healing in Pulmonary Tuberculosis.—A roentgenographic study made by Gordon and Cantarow of sixty tuberculosis patients to whom parathyroid extract was administered (10 units twice daily) from one to four months showed no specific change in the course of the disease except as obtained through the relief of signs and symptoms, notably hemoptysis, pleurisy, cough and expectoration. There was no evidence of decalcification or increased calcium deposition in the lungs. Parathyroid extract (20 units every forty-eight hours) and calcium lactate (30 grains, or 2 Gm., three times daily) were administered to fourteen patients with pulmonary tuberculosis for a period of from one to six months. The results were similar to those noted in the first group. Roentgenographic studies failed to reveal any change in calcification of the lung fields or bones of the hands, and there was no visualization of the blood vessels. It appears that diseased or potentially diseased tuberculous tissue is not influenced directly by hypercalcemia and that parathyroid hormone and calcium should not be administered with the expectation of inducing calcification. The influence of these agents on certain phenomena arising during the course of the disease may be considered of value in treatment.

Effects of Glycerin and of Old Tuberculin on Blood of Normal Guinea-Pigs.—The results of Tompkins' experimental study may be summarized as follows: Old tuberculin was lethal to normal guinea-pigs when injected intraperitoneally in amounts greater than 2 mg. Glycerin in high concentration was lethal to normal guinea-pigs. Repeated injections of normal

guinea-pigs with sublethal amounts of old tuberculin or with sublethal amounts of glycerin did not cause definite permanent pathologic lesions. In repeated intraperitoneal injections of normal guinea-pigs with sublethal amounts of old tuberculin, each injection was followed by an increase in the total white cells and monocytes of the blood, and by a decrease of the lymphocytes. The eosinophils decreased after the earlier injections and increased after the later ones. The lymphocytes exhibited prolonged elevations above normal, subsequent to the decreases that followed the injections. In repeated intraperitoneal injections of normal guinea-pigs with amounts of glycerin as great as or greater than that used in the injections of old tuberculin, each injection was followed by an increase in total white cells and monocytes of the blood, but there was no effect on the lymphocytes or eosinophils either immediately after injection or later. Repeated injections of guinea-pigs with small amounts of old tuberculin, previous to inoculation with tubercle bacilli, did not exert any effect on the tenure of life of the guinea-pigs or on the changes in their tissues and blood incident to tuberculosis. Repeated injections of guinea-pigs with small amounts of old tuberculin, subsequent to inoculation with tubercle bacilli, resulted in prolongation of the tenures of life of the guinea-pigs and retarded the changes in the blood incident to the infection.

Blood Calcium Content in Pulmonary Tuberculosis.—The serum calcium content in 108 patients with pulmonary tuberculosis was determined by Dolgopol. The average serum calcium content was 9.86 mg. per hundred cubic centimeters of serum. This figure is below the average normal figure for nontuberculous persons (10.1 mg.). The cases belonging to the moderately advanced stage showed an average figure above the average normal (10.24 mg.) and a greater incidence of cases with a high serum calcium (58 per cent in moderately advanced tuberculosis and 49 per cent in normal persons). In far-advanced tuberculosis the average serum calcium is below the average normal (9.71 mg.), and the incidence of high serum calcium content is only 40 per cent. A drop of the serum calcium content to below 9.2 mg. per hundred cubic centimeters is a sign of imminent death.

Annals of Medical History, New York

1: 615-745 (Nov.) 1929

Medieval Physician. T. W. Todd, Cleveland.—p. 615.
Manuscript Copies of Medical Works of Isaac Judaeus: Diploma of Jewish Graduate of Medicine of University of Padua in 1695. H. Friedenwald, Baltimore.—p. 629.
Hieronymus Brunschwig of Strassburg. A. Brunschwig, Chicago.—p. 640.
Origins and Significance of Public Health Movement in United States. R. H. Shryock, Washington, D. C.—p. 645.
Ninian Pinkney, M.D. (1811-1877). F. L. Pleadwell, Washington, D. C.—p. 666.
Studies in Paleopathology: XXIII. Surgery in Pre-Columbian Peru. R. L. Moodie, Santa Monica, Calif.—p. 698.

Archives of Dermatol. & Syphilology, Chicago

20: 767-933 (Dec.) 1929

*Immunity of Certain Anatomic Regions from Lesions of Skin Leprosy. R. Hopkins, O. E. Denney and F. A. Johansen, Carville, La.—p. 767.
*Erythrocyanosis Cutis Symmetrica; Angioneurosis Endocrinopathica Polyglandularis. E. V. Kistiakovsky, Kiev, Ukraine.—p. 780.
*Thymol and Cinnamon Oil in Treatment of Ringworm of Scalp. L. B. Kingery, Portland, Ore.—p. 797.
*Tertiary Syphilis of Breast: Case. G. T. Pack and F. E. Adair, New York.—p. 806.
Monilia of Tongue. K. Frost, H. Sutherland-Campbell and O. A. Plunkett, Los Angeles.—p. 811.
*Yaws as Observed in Haiti. H. Fox, New York.—p. 820.
*Acne Bacillus. L. W. Ketron and J. H. Brown, Baltimore.—p. 835.
Gastric Secretion in Psoriasis, Eczema and Dermatitis Herpetiformis. S. Ayres, Jr., Los Angeles.—p. 850.
Quantitative Kahn Procedure with Standard and Sensitized Antigens. E. B. McDermott, Ann Arbor, Mich.—p. 860.
*Carotinemia Associated with Diabetes: Case. F. Wise and F. A. Diasio, New York.—p. 862.
Ernest Bazin: Sketch of His Life and Works. B. B. Beeson, Chicago.—p. 866.

Immunity of Certain Anatomic Regions from Lesions of Skin Leprosy.—A survey made by Hopkins et al. of 302 lepers disclosed the fact that there are anatomic regions in which the macules, infiltrated patches and nodules of skin leprosy rarely, if ever, occurred. These areas are among those which are less exposed to irritation from such sources as sunlight, heat, cold, pressure, friction and from other causes tending to produce local hyperemia or erythema. The regions found to be immune in all patients were the posterior inferior auricular area, the concha, the orbital side of the nose, the lateral palpebral area external to the outer canthus, the axilla, the inframammary fold in women, the interdigital surfaces and the perineum. The scalp, the nasolabial fold and the sulcus of the upper eyelid were found involved in only two, four and two cases, respectively. Immunity in these regions is emphasized by comparison with the involvement of adjacent areas. In the distribution of the lesions of skin leprosy, the regions enumerated may be considered of diagnostic importance. Because of the absence of lesions in regions protected from external irritants, it may be inferred that in these areas conditions are not favorable to the growth of the causative organism.

Erythrocyanosis Cutis Symmetrica; Angioneurosis Endocrinopathica Polyglandularis.—Kistiakovsky believes that erythrocyanosis in women belongs to the group of angioneuroses, owing to the combined effect of cold and dysfunction of the ovaries, the thyroid gland and the hypophysis. Therefore, "erythrocyanosis cutis symmetrica" defines the clinical picture and "angineurosis endocrinopathica polyglandularis" shows the etiology and pathogenesis of this disease.

Thymol and Cinnamon Oil in Treatment of Ringworm of Scalp.—Kingery reports the results of treatment of twelve patients with tinea capitis treated exclusively with thymol and cinnamon oil. Eight were clinically and microscopically well in periods varying from four months to one year; three, according to letters from the parents, have enjoyed complete restoration of hair and no recurrence of symptoms over approximately equivalent periods. As far as it has been possible to learn, in no case has there been a permanent alopecia, and the remarkable simplicity of the method obviates any necessity of discussing the possibilities of temporary or permanent untoward effects The treatment employed consisted in the application three times daily of a solution of gutta percha, 10 Gm.; lead carbonate, 10 Gm., and chloroform to make 100 Gm. containing 0.5 per cent of thymol and 1 per cent of oil of cinnamon. In cases in which this resulted in irritation, the frequency of the applications was decreased.

Tertiary Syphilis of Breast.—A report is given by Pack and Adair of a tertiary syphilitic ulcer of the nipple which simulated Paget's disease. The diagnosis was verified histologically and serologically. A local cure was effected by neoarsphenamine therapy.

Yaws (Frambesia Tropica) as Observed in Haiti.—Impressions of yaws are given by Fox, based on the observation of about 200 cases in rural dispensaries and in the General Hospital at Port-au-Prince, Haiti. The cutaneous lesions resembled those of syphilis in many respects but differed in others, though perhaps not fundamentally. Striking features were the extragenital mode of infection, the keratotic lesions of the soles, the absence of lesions of the mucous membranes in the early stages, and the clinical identity of tertiary manifestations with those of syphilis. In addition to the classic granulomatous lesions, a miliary papular eruption was not infrequently seen as an early manifestation, which at times closely resembled lichen scrofulosorum. Yaws of the scalp was noted in two cases and severe paronychia in one. In one case showing a scaling macular eruption of the palms which was indistinguishable from that of secondary syphilis, the patient presented undoubted evidence of yaws. Mention is made of aneurysm having been found in eight cases at necropsy. Microscopic examination of early and late yaws showed an edematous verrucous plasmoma in which the infiltration was horizontally delimited below and was not intimately related to inflamed blood vessels, as in syphilis. Plasma cells were more succulent and larger than in syphilis, giant cells were rare, and there was no productive inflammation of the blood vessels. Peculiar roentgenologic changes are recorded in one case, in which the lesions differed from those of syphilis. The similarities and differences between yaws and syphilis are briefly discussed.

Acne Bacillus.—In a few limited experiments in man, Ketron and Brown were unable to find any evidence of active infection after intrafollicular injection of the acne bacillus, although inflammatory papules and pustules were produced.

Carotinemia Associated with Diabetes.—Wise and Diasio report the case of a young woman with diabetes who developed carotinemia about two months after she was first treated for diabetic coma. The forehead, palms, soles and parts of the chest and back were pigmented canary yellow. The sclerae were normal. The test for carotin in the blood was positive. The serum was colored brownish yellow. Neither bilirubinemia nor hypercholesterolemia was present. Bile was absent in the urine, and carotinoid pigment was present.

Arkansas M. Soc. Journal, Little Rock

26: 141-162 (Dec.) 1929

Tetanus: Two Cases Cured. A. G. Harrison, Searcy.—p. 141.
*Sterilization of Infected Wounds. L. V. Parmley, Little Rock.—p. 145.
Injection Treatment of Varicose Veins. H. H. Howze, Little Rock.—p. 148.

Sterilization of Infected Wounds.—Parmley relates his experiences with dibromin in the treatment of infected wounds. He usually begins wet dressings with a 1:10,000 solution, using distilled water or sterile rain water, increasing the strength later to a 1:5,000 solution. When the infection is particularly severe and it comes late in the process, he uses a 1:2,500 solution. He always dresses the wound with dry materials and wets them after the bandaging has been completed.

Iowa State M. Soc. Journal, Des Moines

19: 513-554 (Dec.) 1929

Morbidity and Mortality in Relation to Public Health. E. G. Brown, Topeka, Kan.—p. 513.
Symptoms of Hypersensitiveness and Desensitization by Specific Antigens and Parathormone. S. Maurer, Chicago.—p. 522.
Routine Examination of Prostate as Focus of Infection. L. A. West, Des Moines.—p. 529.
Present Status of Prevention of Scarlet Fever by Immunization. O. N. Glesne, Fort Dodge.—p. 532.
Chronic Ulcerative Colitis in Child. J. E. Dyson and F. Moore, Des Moines.—p. 535.

Journal of Infectious Diseases, Chicago

45: 331-414 (Nov.) 1929

Serologic Specificity of Streptococci Having Elective Localizing Power as Isolated in Various Diseases of Man. E. C. Rosenow, Rochester, Minn.—p. 331.
Concentration of Antistreptococcus Serum. G. F. Fasting, Rochester, Minn.—p. 360.
Pathogenicity of Two Strains of Herpetic Virus for Mice. H. B. Andervont, Boston.—p. 366.
Pathogenic Spore-Bearing Anaerobes in Carcasses of Sheep. I. E. Newsom, F. Cross and H. S. Dobbins, Fort Collins, Colo.—p. 386.
*Unusual Types of Non-Lactose-Fermenting, Gram-Negative Bacilli from Acute Diarrhea in Infants. L. D. Fothergill, Boston.—p. 393.
Outbreak of Food Poisoning Caused by Salmonella Enteritidis. R. D'Aunoy, New Orleans.—p. 404.
*Leukocytosis in Scarlet Fever in Relationship to Serum Treatment and Complications. M. E. Wylie, Glasgow, Scotland.—p. 408.

Unusual Types of Non-Lactose-Fermenting, Gram-Negative Bacilli from Acute Diarrhea in Infants.—A group of organisms termed, although incorrectly, "atypical paratyphoid" bacilli have been found by Fothergill in the stools of a high percentage of patients suffering from "summer diarrhea." This group of organisms does not belong in the paratyphoid genus or to any of the known genera of gram-negative intestinal bacilli. The organisms have in common that they are nonmotile; they do not liquefy gelatin; they do not ferment lactose or else ferment it with a latent reaction, and all sugars fermented are fermented with the production of acid and gas. Within this group, agglutination shows that they are not an homologous group like the typhoid bacillus. Of these organisms, a sucrose-fermenting subgroup occurred in about one third of the carefully studied cases, and the serum from a few patients with this organism in the stools showed agglutination, but in one case agglutination was negative. With other types of organisms in the main group, the patients' serums in the few cases studied showed no agglutination. The study of this group of organisms as related to infantile diarrhea is far from complete and much remains to be done before one would be justified in drawing any definite conclusions concerning the etiology.

Leukocytosis in Scarlet Fever in Relationship to Serum Treatment and Complications.—Wylie states that the leukocyte count is a less reliable index of the severity of scarlet fever than is the general clinical picture and can seldom be used as an index of the severity or of the progress of a case of scarlet fever with respect to the probable onset of complications. In uncomplicated and complicated cases of scarlet fever a pronounced fall in the white cell count, between the first and third day, is a constant finding. There is no evidence to indicate that the administration of antitoxin in cases of scarlet fever has any effect on the leukocyte count from admission to the seventh day of illness. In cases of scarlet fever a polymorphonuclear leukocytosis is the rule, but the excess of polymorphonuclear cells is slight, and their proportion does not undergo much variation throughout the course of the disease nor does it differ characteristically in the complicated and uncomplicated cases. The behavior of these cells does not distinguish the simple from the complicated cases. From the first day onward the small lymphocytes undergo a steady and constant increase. The large lymphocytes increase from the first to the third day but decrease thereafter until by the seventh day their original level is virtually regained. This constant curve is independent of the occurrence or nonoccurrence of complications and of the giving or withholding of serum.

Journal of Preventive Medicine, Baltimore

39: 707-776 (Nov.) 1929

Causes of Absence in Elementary School of University of Chicago During Eight School Years. C. C. Evans, Chicago.—p. 419.
Influenza Epidemic in Two Small Isolated Towns. S. D. Kramer, Boston.—p. 433.
Epidemiologic Study of Poliomyelitis in Montana in 1928. J. H. Crouch, Helena, Mont.—p. 457.
*Precipitin Test in Experimental Trichiniasis. G. W. Bachman, Baltimore.—p. 465.
Complement Fixation in Experimental Trichiniasis. G. W. Bachman and P. E. Menendez, Baltimore.—p. 471.
Recent Mortality from Diabetes in United States. W. W. Lee, Indianapolis.—p. 475.
*Observations Following Feeding of Salmonella Enteritidis to Rats on Diets Varying in Vitamin A Content. E. Verder, Chicago.—p. 489.
*Botulism Resulting from Consumption of Canned Onions. S. A. Koser and D. O. Reiter, Chicago.—p. 499.

Precipitin Test in Experimental Trichiniasis.—Bachman corroborates his previous conclusions that precipitins can be demonstrated in the serum of rabbits infected with *Trichinella spiralis* from twenty to thirty days after infection, when one uses an antigen prepared from isolated larvae dried, ground and extracted with hundredth normal hydrochloric acid in 0.85 per cent sodium chloride solution. A comparative study of the results with this acid antigen and with another antigen prepared with Coca's solution (768 precipitation tests on twenty rabbits) showed that the latter was the more potent, precipitin antibodies being detected in from five to twenty days after infection. When using the antigen prepared with Coca's solution, it is thus possible to detect that infection during the period of ingression—that is, while the adult worms are still in the small intestine and before the larvae have entered the blood stream.

Feeding of Salmonella Enteritidis to Rats on Diets Varying in Vitamin A Content.—Two of nine rats on a diet containing an adequate amount of vitamin A developed a profuse watery diarrhea from twelve to twenty-four hours after swallowing a suspension of living *Salmonella enteritidis*, while none of ten rats on diets containing very small amounts of the vitamin showed any symptoms of "food poisoning." In this series of experiments made by Verder neither the ability of this strain of *S. enteritidis* to invade the tissues nor its capacity to persist and probably increase in numbers in the duodenum was of importance in provoking "food poisoning" symptoms. The cultures of the spleens, livers, lungs, kidneys and heart blood of the rats on deficient diets showed that most of them were harboring organisms commonly found in the intestinal flora, while the organs of the rats on adequate diets proved sterile. *S. enteritidis* was isolated from the spleen, liver, lungs and kidneys, as well as from the duodenum, of many of the deficient-diet rats to which this organism had been fed.

Botulism Resulting from Consumption of Canned Onions.—In connection with two cases of botulism that occurred in Chicago, Jan. 25 and 26, 1929, several interesting features were brought to light by Koser and Reiter regarding the occurrence of the causative organism and its growth in a foodstuff in which it has not heretofore been reported. The cases were due to the consumption of canned Italian onions (shalots). A

can of the onions was opened in an Italian household in Chicago, made into sandwiches and consumed by two members of the family, both of whom became ill with symptoms of botulism. One of them, who had eaten only a small amount of the onion sandwiches, subsequently recovered, while the other died within forty-eight hours. Botulinum toxin, type B, was demonstrated in the blood serum but not in the spinal fluid of the patient who died. The presence of *Clostridium botulinum*, type B, was also demonstrated in the small intestine (ileum). Inspection of approximately 400 cans of onions of the same shipment revealed slightly more than 1 per cent of swelled cans. One swelled can, secured from a retail store, was found to be toxic and a culture of *Clostridium botulinum*, type B, was isolated from this can.

Medical Journal & Record, New York

130: 609-668 (Dec. 4) 1929

Functional Disturbances of Stomach. M. Einhorn, New York.—p. 609.
Endocrines in Penal Therapy. J. R. Harding, Elmira, N. Y.—p. 610.
Relativity: Theory to Explain Certain Phenomena and Observations. J. Eidelsberg, New York.—p. 613.
Treatment of Pain in Cancer. R. J. Behan, Pittsburgh.—p. 614.
Muscular System as Causative and Contributing Factor in Deformities of Human Skeleton. H. Keller, New York.—p. 620.
*Operation for Pendulous Breasts. C. F. Dowkontt, New York.—p. 624.
Histologic Considerations in Oral Cancer. J. Muir, New York.—p. 627.
Mono-iodocinchophen in Arthritic Conditions. J. G. Ross, Spring City, Pa.—p. 629.
*Uses and Dangers of Light Therapy. R. Kovacs, New York.—p. 631.
Practical Considerations in Light Dosage. W. T. Anderson, Newark, N. J.—p. 637.
Control of Dosage of Ultraviolet Radiation. E. Bridge, Rochester, N. Y. —p. 639.
Facts About Carbon Arc. M. J. Dorcas, Cleveland.—p. 642.
Ultraviolet Rays in Dermatology. H. Fox, New York.—p. 645.
Concerning the Plague. E. P. Scarlett, Iowa City.—p. 647.

Operation for Pendulous Breasts.—Dowkontt carries an incision through the skin and fatty tissue around the entire breast at the junction of the skin covering it with that of the chest wall. A second incision is carried through the skin in a circular manner and at a distance from the nipple which will allow just sufficient skin to cover the gland. The skin and subcutaneous tissue between these two circular incisions is then removed. The pectoral fascia is incised beneath the topmost part of the first incision, a lip everted and the corresponding margin of the gland sutured to its under surface. The two skin incisions are then carefully approximated and the wounds dressed. Patients are confined to bed for from one week to ten days, after which they wear a supporting bandage for two weeks longer.

Uses and Dangers of Light Therapy.—Kovacs stresses the fact that irradiations from generators of ultraviolet rays and other parts of the electromagnetic spectrum form a valuable addition to the modern physician's therapeutic armamentarium. In order to be of greatest possible benefit to the patient their application must be based (1) on accurate diagnosis of the disease or of the patient's general condition; (2) on proper dosage based on the capacity of the particular source of radiation, and (3) on experience in judging the beneficial as well as the possible ill effects of irradiation. The home use of ultraviolet generators without the observation of these preliminaries is condemned.

Michigan State M. Soc. Journal, Grand Rapids

28: 835-908 (Dec.) 1929

*Practical Dietetics in Light of Modern Scientific Research. C. E. Stewart, Battle Creek.—p. 835.
*Physical Therapy. P. Roth, Battle Creek.—p. 843.
*Psychotherapy. O. R. Yoder, Kalamazoo.—p. 847.
Medicinal Therapeutics. W. H. Marshall, Flint.—p. 849.
Allied Manifestations of Allergy in Children. S. J. Levin, Detroit.—p. 857.
Comparative Study of Complete and Subtotal Hysterectomy. H. M. Nelson, Detroit.—p. 860.
Fibroma of Nares (Nasal Polyps). N. Bentley, Detroit.—p. 863.
New Strategy in Campaign Against Consumption. E. E. Slosson, Washington, D. C.—p. 867.
Head Ganglia and Head Pain: Modern Methods of Treatment. C. F. McClintic, Detroit.—p. 869.
Medical Observations on My South American-South African Cruise. L. B. Carroll, Detroit.—p. 877.

Practical Dietetics in Light of Modern Scientific Research.—Stewart emphasizes the point that physical fitness is primarily dependent on the scientific selection of food. He believes that the chief factor responsible for human deterioration in recent times lies in the unwise choice of food. The diet should contain a sufficient amount of residue-containing foods to secure normal bowel evacuation. Care should be exercised in selecting a sufficient amount of alkaline foods to keep the acidity of the urine within normal limits. The diet should contain a proper carbohydrate fat ratio to prevent the acetone type of acidosis, which is 2 to 1. The diet should be properly balanced with reference to fuel values derived from proteins, fats and carbohydrates. About 2,600 calories daily meets the requirements of the average normal individual. The diet should be derived from such foods as will furnish the required minerals in sufficient quantities to meet the needs of the individual. The diet should also contain foods that will furnish vitamins in ample amounts. The scientific application of the principles of this newer knowledge of nutrition is capable of doing as much for medicine as asepsis has done for surgery.

Physical Therapy.—Roth insists that physical therapy should be the method of choice whenever possible and its use demands as much training as the intelligent use of medical agents. Physical therapy makes use of the same agents that are primarily indispensable for the promotion of life; consequently these agents work in greater harmony with nature and with greater safety than medicinal agents can do.

Psychotherapy.—Yoder regards the cure of any mental disease as being questionable. Many honest and sincere physicians have called patients cured and presented interesting results, when in reality the condition has only been arrested to appear later. Prevention is the only solution, and this becomes the duty of all those who are interested in human welfare. The general practitioner can do more to prevent mental disease than the specialist. He is in contact with every member of the family; he knows their bad family relations, their quarrels, their problems and their ideals. By friendly suggestion he may be able to prevent many irresponsible acts.

Nebraska State M. Journal, Norfolk

14: 457-498 (Dec.) 1929

Right-Sided Abdominal Pain in Relation to Urology. J. M. Willis, McCook.—p. 457.
Significance of Blood in Urine. C. McMartin, Omaha.—p. 460.
Diagnosis of Urinary Obstructions. C. A. Owens, Omaha.—p. 463.
Tuberculosis of Kidney. A. D. Munger, Lincoln.—p. 467.
Tumors of Bladder. A. P. Synhorst, Grand Island.—p. 469.
Increasing Value of Author's Cautery Punch Operation for Relief of Obstructions at Bladder Neck. J. R. Caulk, St. Louis.—p. 472.
Empyema Thoracis. H. H. Davis, Omaha.—p. 480.
State Medicine. P. Findley, Omaha.—p. 483.
Two Types of Vascular Disturbances of Extremities. B. M. Riley, Omaha.—p. 487.

New England J. of Medicine, Boston

201: 1075-1128 (Nov. 28) 1929

Healing of Gastric Ulcer. F. W. White, Boston.—p. 1075.
Anatomic Factors Predisposing to Corporic Ulcer. L. G. Cole, New York.—p. 1081.
Importance of Medical Care and Consultation in Cases of Gallbladder Disease: Advantage of Spinal Anesthesia in Operations on Gallbladder. F. B. Lund, Boston.—p. 1089.
Motor Mechanism Involving Antrum, Pylorus and Duodenum. M. E. Rehfuss, Philadelphia.—p. 1095.
Observations on Spinal Anesthesia. G. R. Anderson, Brattleboro, Vt.—p. 1103.

New Orleans Medical & Surgical Journal

82: 333-408 (Dec.) 1929

Memorial Address for Deceased Members. H. Dupit, New Orleans. —p. 333.
Sinus Disease in Infants and Children. R. C. Lynch, New Orleans.—p. 336.
Infantile Paralysis. H. T. Simon, New Orleans.—p. 339.
Diagnosis of Gastric and Duodenal Diseases: Factors Leading to Roentgenologic Error. A. B. Moore, Rochester, Minn.—p. 341.
Place Urology Bears to General Surgeon. M. L. Flynt, Newton, Miss. —p. 346.
Are We Sufficiently Progressed Scientifically for Legal Sexual Sterilization of Inmates of State Institutions in Certain Cases? C. Pierson, Alexandria, La.—p. 350.
Paroxysmal Auricular Fibrillation. R. Lyons, New Orleans.—p. 357.
Aplastic Anemia. T. E. Strain, Shreveport, La.—p. 364.
The Whys and Wherefores of Nonsurgical Biliary Drainage. S. K. Simon, New Orleans.—p. 367.
Ocular Tuberculosis. W. R. Buffington, New Orleans.—p. 372.
Lipiodol in Otolaryngology. F. E. Le Jeune, New Orleans.—p. 379.
Endocarditis. C. L. Simmons, Hazlehurst, Miss.—p. 383.
Vaccina Infected Tattoo: Case. A. G. Wilde, Jackson, Miss.—p. 385.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

2: 885-938 (Nov. 16) 1929

Lupus Vulgaris: Plea for Early and Organized Treatment. R. Hallam. —p. 885.

*Different Preparations of Bismuth in Syphilis Therapy: Rate of Absorption as Guide to Employment. S. Lomholt.—p. 887.

Ethylene Anesthesia. H. P. Fairlie.—p. 891.

*Erythremia with High Degree of Acholuric Jaundice. F. P. Weber.—p. 892.

Secondary Complications in Patients Suffering from Empyema of Pleura. L. Hofbauer.—p. 893.

*Significance of Cholesterol in Physiology and Pathology. E. N. Chamberlain.—p. 896.

*Pneumococcal Infections. C. H. Whittle.—p. 898.

Continuous Drainage of Hydronephrotic Only Kidney. F. Mannington. —p. 900.

Foreign Bodies (Needle, Copper Wire, Fork) Swallowed Intentionally. D. A. P. MacAlister.—p. 900.

Acute Jejunal Perforation Associated with Carcinoma of Stomach. E. R. Williams.—p. 901.

Suspected Rat-Bite Fever: Case. W. C. Harvey.—p. 901.

Different Preparations of Bismuth in the Treatment of Syphilis.—Lomholt summarizes his review of the therapeutic value of bismuth in syphilis as follows: Bismuth as a substitute is superior to mercury. Internal and percutaneous administration is ineffective owing to restricted and irregular absorption of bismuth. Intravenous treatment is dangerous in large doses; not sufficiently effective in well tolerated doses; impracticable, as it requires frequent injections. Intramuscular treatment remains the treatment to be preferred. Its aim is to secure a fairly quick, regular, effective saturation of the body, without risk of intoxication. As to the different forms of treatment, the following outlines may be given: Watery solutions are effective but are somewhat painful and troublesome because they require frequent injection. Oily solutions are almost painless but are not especially rapidly absorbed. Their therapeutic power is reported by many to be good. Oily suspensions are generally painless but their absorption is somewhat slow and therefore often rather irregular. Preference should be given to the compounds that are not quite insoluble in water. Bismuth salicylate seems to be one of the best. Watery suspensions are absorbed rather quickly and are therefore slightly painful. Preference should be given to compounds of restricted solubility. The oxychloride possesses the qualities of absolute purity and stability. With particles of a size of from 3 to 5 microns it is almost painless and very powerful. The daily dose of bismuth metal may be fixed at about 0.5 mg. per kilogram of body weight. Higher doses are required with remedies of a slow and incomplete absorption. Lomholt recommends as a routine measure the administration of neoarsphenamine in doses of from 0.6 to 0.7 Gm. given in series of five to six intravenous injections, and of bismuth oxychloride in watery suspension in doses of from 0.15 to 0.2 Gm. and in series of eight to ten intramuscular injections, to a total number of about eighteen neoarsphenamine injections and sixty bismuth oxychloride injections in a period of about two years. Even in an incomplete form, this scheme proved definitely effective. In 152 patients with fresh syphilis, no clinical relapse was seen during and after the treatment. None of the women treated gave birth to a child with congenital syphilis. By the end of the treatment only two patients showed a positive Wassermann reaction, seven a doubtful, and 143 a definitely negative test. Retention of bismuth in the organism depends on two different factors. Diffuse storage in the different organs of the body is a matter of slight significance; it amounts to scarcely more than 100 to 150 mg. after an intensive course. The unabsorbed deposits, however, may contain unlimited quantities of bismuth, especially in the case of compounds that are absorbed slowly. This second factor is an important but rather capricious and slightly dangerous item in intermittent treatment of syphilis. To avoid an intravascular taking the place of an intramuscular injection, it is recommended not only to make an aspiration but also to retract the needle slightly during the injection.

Erythremia with High Degree of Acholuric Jaundice.—Weber reports the case of a woman, aged 40, who manifested considerable jaundice, without bilirubin in the urine (acholuric jaundice), but with a highly positive indirect Hijmans van den Bergh reaction in the blood plasma—that is to say, for "blood bilirubin," which he believes to be the same as Virchow's "haematoidin." The spleen was enlarged and firm, the lower edge reaching three fingerbreadths below the costal margin. Weber regards it as probable that the chronic acholuric jaundice and the icteric exacerbations in the present case are due to active destruction of the erythrocytes in the spleen (and possibly in other parts of the reticulo-endothelial system), but there is no evidence of abnormal "fragility" of the red cells. The jaundice might therefore be interpreted as the manifestation of a spontaneous attempt to compensate for the excessive production of erythrocytes in the bone marrow by increased hemolysis in the spleen—a compensatory form of "hypersplenism."

Significance of Cholesterol in Physiology and Pathology.—Chamberlain points out that while acute nephritis and the chronic parenchymatous form are associated with considerable edema and a marked rise of blood cholesterol, the chronic interstitial form, with its small rise of blood cholesterol, is rarely accompanied by much edema, unless in the terminal phases of the disease as an expression of cardiac failure. This suggests that the two types of the disease are essentially different in their nature, as indeed their causation and general course would lead one to expect. The blood cholesterol is raised in arteriosclerosis, and the question arises as to whether the hypercholesterolemia is related to the arteriosclerosis as cause or effect. No rise of blood cholesterol accompanies the edema of cardiac failure. This is of importance in helping to distinguish, particularly in so-called cardiorenal cases, between edema of cardiac and that of renal origin, for, as it has been seen, edema due to renal disease is normally accompanied by hypercholesterolemia. The lipemia that occurs in severe diabetes is a good indication of the severity of the condition, and as the three principal groups of lipoids—fatty acids, lecithin and cholesterol —are all increased proportionally, the estimation of one of them will suffice to indicate the degree of lipemia. Cholesterol is the most stable and easily estimated of the three, and its determination affords prognostic guidance of importance. In jaundice due to obstructive lesions there is usually an increase in blood cholesterol roughly proportionate to the intensity of the jaundice and due, presumably, to the diminished excretion of cholesterol by way of the bile. This hypercholesterolemia may serve to distinguish obstructive from hemolytic forms of jaundice, for in the latter there is often a decrease in blood cholesterol. This is seen, for example, in acholuric familial jaundice and in pernicious anemia, and may be partly accounted for by the concurrent anemia. Cholelithiasis early attracted cholesterol workers, because of the almost constant presence of cholesterol in gallstones, and repeated efforts have been made to show that these stones form as a deposit of cholesterol from blood overcharged with this substance. Another factor that appears to be associated with the formation of gallstones is pregnancy, for gallstones are undoubtedly common in multiparous women. This factor may act through the disturbance of cholesterol physiology which occurs in pregnancy, since hypercholesterolemia is often present. There seems little doubt from all these facts that the formation of gallstones is to be attributed to some disturbance in cholesterol metabolism, but the evidence is not sufficient as yet to indicate decisively the nature of this disturbance. In pernicious anemia several authorities have recorded a hypocholesterolemia, and this is not entirely dependent on the diminished number of red corpuscles—in fact, the blood cholesterol is less in the plasma than in the whole blood. In chlorosis and other types of anemia, hypocholesterolemia is usually found. In secondary anemias there is some difference of opinion as to the cholesterol of the blood, some authors recording a hypocholesterolemia, others no material change.

Pneumococcal Infectious.—Whittle has found that primary lobar pneumonia and empyema due to pneumococci are invariably caused by strains of high virulence. In the period under examination (1924-1929) 70.5 per cent belong to type I. Type II and type III strains have exhibited relatively great toxicity together with a rather lower order of virulence, particularly noticeable in the first three months of 1929. These organisms may infect a comparatively small amount of lung substance and yet produce a fairly severe and prolonged illness. They therefore differ in their behavior from the type I strains.

The task of converting strains of low virulence, recovered from cases of nasal catarrh, conjunctivitis and bronchitis, into those which are sufficiently virulent to set up lobar pneumonia in healthy subjects has again proved impossible by any of the known experimental procedures for raising virulence. No support is therefore given to the theory that these strains of low virulence may become sufficiently pathogenic to produce pulmonary lesions, though such a possibility cannot be finally excluded. A condition of subacute otitis media with involvement of the semicircular canals has been set up in mice by the introduction of pneumococci of moderate or feeble virulence into the peritoneal cavity. The condition bears the closest resemblance to the spontaneous otitis media occurring in laboratory rodents. Though the pathology of the infection has not been worked out in detail, it is clear that the pneumococcus has a special predilection for the middle ear both in man and in the mouse.

Indian J. Medical Research, Calcutta

17: 339-646 (Oct.) 1929

Osteomalacia (late Rickets) Studies: I. Clinical Symptoms in Relation to Bone Changes as Shown by Roentgen Examination. D. C. Wilson. —p. 339.
Roentgen Study of Osteomalacia. V. E. Pilley.—p. 348.
*Saussurea Lappa (Kut Root) in Pharmacology and Therapeutics. R. N. Chopra and P. De—p. 351.
Rôle of Surface Tension of Activity of Cinchona Alkaloids. R. N. Chopra and S. G. Choudhury.—p. 360.
Pharmacologic Action of Pseudo-Ephedrine from Indian Varieties of Ephedra. R. N. Chopra, B. B. Dikshit and K. V. Pillai.—p. 366.
Certain Medicinal Plants Used in Indigenous Medicine. R. N. Chopra and S. Ghosh.—p. 377.
Description of Male, Female, Egg and Larva of Anopheles Annandalei Var. Interruptus Nov. Var. I. M. Puri.—p. 385.
New Tree-Hole Breeding Anopheles from South India—Anopheles Sintoni Sp. Nov.—and Revised Description of Larva of A. Culiciformis Cogill. I. M. Puri.—p. 397.
House-to-House Filariasis Survey in Saidapet, 1927-1928, and Note on Source of Filarial Infection in Mosquitoes. H. H. King, C. G. Pandit, K. P. Menon and P. V. S. Iyer.—p. 406.
Investigation on Products Obtained by Exposing Oils and Carbohydrates to Sunlight in Presence of Air. S. N. Chakrabarti and N. R. Dhar. —p. 430.
Influence of Manganese Chloride in Preventing Lymphadenoid Goiter in Rats. R. McCarrison.—p. 439.
Experimental Production of Lymphadenoid Goiter. R. McCarrison.—p. 442.
Effect of Bile Salt (Sodium Taurocholate) on Gastric Secretion. T. A. Hughes and P. N. Sahai.—p. 453.
Serum Calcium and Inorganic Phosphorus in Health and Disease. T. A. Hughes, D. L. Shrivastava and P. N. Sahai.—p. 461.
Blood Chemistry in Osteomalacia. T. A. Hughes, D. L. Shrivastava and P. N. Sahai.—p. 470.
Standardization of Antigen Used in Syphilis Flocculation Reaction. K. V. Krishnan.—p. 477.
Experiments on Radiant Energy as Lethal Agent. W. F. Harvey.—p. 507.
Collection of Anopheline and Culicine Mosquitoes from Madeira and Canary Islands. S. R. Christophers.—p. 518.
Mixture Reaction in Hemolysis by Acids and Bases. S. R. Christophers. —p. 533.
Hemolysis by Acid and Base and by Acid and Basic Salts Including Quinine and Its Salts. S. R. Christophers.—p. 544.
Electric Charge of Red Blood Corpuscle, Hemoglobin and Stroma in Relation to Hemolysis. S. R. Christophers.—p. 564.
Bovine Tubercle Bacillus Infection in Man in India: Case. M. B. Soparkar.—p. 574.
Serum Protein Changes in Malaria and Typhoid Fever with Suggestions as to Possible Bearing on Immunity. R. B. Lloyd and S. N. Paul. —p. 583.
Dissociation of Bacillus Avisepticus. L. A. P. Anderson, M. G. Coombes and S. M. K. Mallick.—p. 611.
Id. L. A. P. Anderson, M. G. Coombes, S. M. K. Mallick and C. de C. Martin.—p. 625.
Electrical Behavior of Rough and Smooth Variants of B. Typhosus. M. L. Ahuja.—p. 640.
Leishmania Donovani in Human Feces in Indian Kala-Azar. H. E. Shortt, R. O. A. Smith, H. A. H. d'Silva and C. S. Swaminath.—p. 644.

Saussurea Lappa (Kut Root) in Pharmacology and Therapeutics.—Saussurea lappa, or kut root, grows on the moist slopes of the northern Himalayas at a height of from 8,000 to 13,000 feet above the level of the sea. The chief active constituents of the root, according to Chopra and De, are an essential oil, 1.5 per cent; an alkaloid which has been named saussurine, 0.05 per cent, and resin, 6 per cent. Besides these there occur a fixed oil, traces of a bitter substance, small quantities of tannins, inulin, potassium nitrate and sugars. The leaves do not contain any essential oil but 0.025 per cent of the alkaloid saussurine. The essential oil has antiseptic and disinfectant properties; it relaxes the involuntary muscle tissue; it is a cardiac stimulant, a carminative, an expectorant and a diuretic. The alkaloid saussurine has a depressant action on the vagus center in the medulla as well as on the involuntary muscle fibers of the bronchioles and the gastro-intestinal tract. It produces a slight but persistent rise of blood pressure and increases the force of contraction and amplitude of the ventricles. The drug has a remarkable effect in controlling attacks of bronchial asthma, especially those of the vagotonic type. The paroxysms are cut short by the combined action of the essential oil and the alkaloid present in the root. The essential oil during its excretion in the lungs not only relaxes the bronchial muscle but has a marked expectorant action which relieves turgescence of the mucosa. It may be pointed out, however, that, although the drug relieves asthmatic attacks, it does not produce permanent cure unless the causal factors are investigated and removed. The drug is also useful in persistent hiccup. The drug has no anthelmintic action nor has it any action against malaria, leprosy and rheumatism, as has been claimed. The preparation used for administration was an alcoholic extract prepared from the root, which contains the essential oil as well as the alkaloid; this was administered in doses of from one-half to 2 fluidrachms (from 2 to 7.5 cc.).

Annales de Médecine, Paris

26: 201-297 (Oct.) 1929

Hyperthyroidism. L. Dautrebande.—p. 201.
*Hydatid Cyst of Heart. C. Bacaloglu, N. Balan, L. Ballif and C. Vasilescu.—p. 242.
Connections Between Sinusal Vestibule and Auricle and Ventricle. E. Géraudel.—p. 269.

Hydatid Cyst of Heart.—Bacaloglu et al. report the occurrence of this condition in a man, aged 28, who had been sick for several months; his physical and mental condition gradually became worse and death ensued from septicemia caused by the suppuration of an infarct of the spleen. Necropsy showed that many arterioles in all the organs contained pieces of membrane. Of especial interest was the fact that, although echinococci were found in a purulent cyst near the surface of the auricular thrombus, there was no suppuration of the thrombus itself or of the hydatid cyst in the heart. The multiple lesions in the brain (emboli on the surface and foci of hemorrhage and softening) followed rupture of the aneurysmal vessels. The myocardium contained many giant cells in all stages of development; they were especially numerous in the neighborhood of the vascular endothelium. On the basis of their observations, the authors conclude that in man, as well as in animals, multiple foci of echinococcus infection can be produced by the dissemination of scolices and daughter cysts caused by rupture of a primary hydatid cyst in the myocardium.

Journal de Chirurgie, Paris

34: 425-568 (Oct.) 1929

*Prolapse of Left Iliac Anus. P. Mallet-Guy and M. Étienne-Martin.—p. 425.
Indications and Results of Osteosynthesis in Treatment of Pott's Disease. E. Sorrel.—p. 439.
Injuries of Tendons of Hand. J. C. Bloch and P. Bonnet.—p. 456.

Prolapse of Left Iliac Anus.—On the basis of their personal experience with seven patients in whom complications of a left iliac anus ensued, Mallet-Guy and Étienne-Martin advise the following treatment: In every extensive prolapse of such an anus, whether "strangulated," inflamed or not, surgical resection is indicated. However, the entire operation should remain within the limits of the prolapse, so as to confine this inevitably septic operation within an area that has become immune to infection. In case of strangulation of the inferior end, the operation should be performed extra-abdominally; one should not seek to do more than resect the prolapse. In nonstrangulated conditions in which the abdominal wall is weak, a complementary circular suture around the prolapse is advised; care should be taken that it is inserted at a safe distance from the colostomy in noninfected tissue. Recurrence of the prolapse may be prevented, if all the free portion of the sigmoid flexure is resected. The only persisting symptom is eventration, which, as the authors believe, attends and precedes every extensive prolapse of the inferior segment in left iliac colostomies.

Journal d'Urologie Médicale et Chirurgicale, Paris

28: 209-296 (Sept.) 1929

*Functional Integrity of Tuberculous Kidneys. M. Gérard.—p. 209.
Bacterial Association in Urinary Tract. J. Fisch.—p. 229.
Roentgenography of Micturition in Diseases of Prostate and Urethra. T. Martin-Luque.—p. 237.
Suprapubic Prostatectomy. M. Pares Pares.—p. 251.

Functional Integrity of Tuberculous Kidneys.—Gérard reports the case histories of five patients in whom tuberculosis of the kidneys was established. The kidney functioning was tested for the amount of urea excreted, as the author considers this standard of greater value than the measurement of the amount of water eliminated. Gérard found that tuberculosis had developed in kidneys which were in a state of compensatory functional hypertrophy and in which therefore (at least for the time being) the amount of urea excreted was large. On the basis of his personal experience and a discussion of Ambard's accepted theory, Gérard points to the importance of thorough functional tests before considering nephrectomy in patients with nephrotuberculosis.

Presse Médicale, Paris

37: 1357-1372 (Oct. 19) 1929

*Epinephrine Contraction of Spleen in Chronic Splenomegaly. P. Émile-Weil and P. Isch-Wall.—p. 1357.
Puerperal Pelvic Phlebitis. L. Ramond.—p. 1367.

Epinephrine Contraction of Spleen in Chronic Splenomegaly.—In order to verify the divergent results reported by various authors, Émile-Weil and Isch-Wall studied, in twenty-one cases of splenic disorders, the effect of an injection of epinephrine on the leukocyte count and on the contraction of the spleen. The results of their examinations conform to those of Pagniez et al. and they conclude that there is no relation between leukocytosis induced by epinephrine and contraction of the spleen, so that the use of such a test as a guide in diagnosis is not warranted. However, the authors do consider injection of epinephrine before splenectomy beneficial, as hemorrhages may thereby be reduced. This is especially the case in the resection of a spleen congested with blood. The authors believe, however, that blood transfusions before splenectomy should not be discontinued.

37: 1373-1388 (Oct. 23) 1929

*Solar Pigmentation and Heliotherapy in Peritoneal Tuberculosis. C. Brody.—p. 1373.
*Pyretotherapy in Diseases of Central Nervous System. D. Paulian.—p. 1375.

Solar Pigmentation and Heliotherapy in Peritoneal Tuberculosis.—It has been noted that prolonged and intense exposure to sunlight has not had the desired effect in the treatment of peritoneal tuberculosis. After a period of distinct improvement the condition has progressed slowly or become stationary; in some patients even a regression was seen. As a result of his personal experience and a review of the literature Brody concludes that daily exposure to sunlight in Grasse (southern France) for a period of from three to six hours, as has been prescribed heretofore, is excessive. This time should be reduced considerably, and continuous exposure is also prohibited. According to Brody, overexposure and continuous treatment are responsible for the protracted duration of heliotherapy. He considers it important to interpolate periods of depigmentation and disuse. Association of actinotherapy and heliotherapy permits reduction of the time of exposure to sunlight.

Pyretotherapy in Diseases of Central Nervous System.—Paulian favors malariotherapy, but he considers other methods of inducing fever indicated, either if the patient is too feeble to support malariotherapy and if the considerable rise of temperature thereby produced would aggravate the condition, or if there is no reliable source for obtaining the malarial parasites. The advantage of pyretotherapy not induced by malaria lies in the fact that the dosage and initiation of hyperthermia are controlled more easily. Paulian also favors the use of drugs to support the pyretotherapy.

37: 1389-1404 (Oct. 26) 1929

Neurosyphilis: Biologic and Clinical Stages. P. Ravaut.—p. 1389.
*Preventive Vaccination Against Tuberculosis by Subcutaneous Injection of B C G. J. Heimbeck.—p. 1391.

Preventive Vaccination Against Tuberculosis by Subcutaneous Injection of B C G.—Heimbeck reports that during 1929 fifty-two of fifty-six pupils from a nurses' training school who had a negative Pirquet reaction were given a subcutaneous injection of 0.025 mg. of B C G vaccine. This treatment has been given to pupils since 1924 and has never caused an accident or in any way impaired their health. The vaccination has conferred immunity to the disease, and the morbidity of tuberculosis among the nurses has thus been reduced. In view of his experience under the ideal conditions of the experiment and the preliminary results of subcutaneous vaccination on the inhabitants of the district of Sollien and of Oslo, Heimbeck considers the results of systematic administration of B C G vaccine satisfactory and encouraging.

Revue Française de Pédiatrie, Paris

5: 423-554 (Aug.) 1929

*Cholesterol Content of Blood in Child. E. Lesné, P. Zizine and Sylvestre.—p. 423.
Pott's Disease Due to Syphilis of Spinal Column. P. Woringer.—p. 446.
Effect of Climate on Phenotypic Constitution of Tuberculous Children. Dmitrieff, Dernoff and Vasilieff.—p. 483.
Lymphosarcoma of Retroperitoneal Lymph Nodes. L. Garot.—p. 491.
Acute Lymphatic Leukemia of Splenic Type. A. Vallette, J. Stolz and J. Silber.—p. 497.

Cholesterol Content of Blood in Child.—Lesné et al. report the analysis of blood cholesterol in about 300 children. The cholesterol level in the blood of normal children increases from birth to the age of 15 years. From 0.80 Gm. per liter in the first two months of life, it increases to 1.25 Gm. on an average between 2 and 18 months of age and from 1.4 to 1.5 Gm. in the adolescent. This increase may be due to various factors as nutrition, development, and the effect of many pathologic conditions. Tuberculosis may be responsible to a great extent. It was also found that the cholesterol level was higher in breast-fed infants than in those fed artificially. During acute diseases (bronchopneumonia and diphtheria) the decrease of cholesterol is proportional to the severity of the disease. With a favorable course the cholesterol returns to the normal level, in certain cases after a transitional period of hypercholesterolemia (noted especially in diphtheria). In fatal evolution of the disease, the hypocholesterolemia is increased. In mild diseases and in chronic infections the cholesterol content of the blood remains normal with a trend toward hypercholesterolemia. Lesné et al. consider the amount of cholesterolemia as being a guide in diagnosis to a certain extent. Hypercholesterolemia is a more constant symptom than azotemia during mild cases of acute nephritis with a tendency toward a chronic condition; in severe acute forms, hypocholesterolemia is noted. In disorders of the liver (infectious jaundice) hypercholesterolemia was noted, probably due to retention of bile. In rickets (in infants of from 6 months to 2 years of age) hypercholesterolemia was found in seventeen of twenty-five cases. Lesné et al. are inclined to attribute these last results to mild chronic infections and intoxications, which often go hand in hand with the disease. In children with craniotabes, hypocholesterolemia appears to be constant regardless of whether this condition is coincident with rickets. Examination of the blood cholesterol level after treatment with viosterol (irradiated cholesterol) or cod liver oil did not show constant results, and conclusions cannot as yet be drawn from these observations.

Revue Neurologique, Paris

2: 385-480 (Oct.) 1929

*Hitherto Undescribed Type of Familial Disease: Myoclonic Epilepsy with Choreo-Athetosis. L. van Bogaert.—p. 385.
Acute Anterior Poliomyelitis. A. Radovici, A. Savulesco and M. Petresco.—p. 415.
Automatic Movements Consecutive to Exertion of Voluntary Muscle. A. Salmon.—p. 428.
Anencephalia: Case. P. Nayrac and Patoir.—p. 439.

Hitherto Undescribed Type of Familial Disease: Myoclonic Epilepsy with Choreo-Athetosis.—Van Bogaert reports in detail two cases of this condition in two children belonging to a family a study of whose geneology showed that six members were subject to a peculiar form of epilepsy. The symptoms of the disease may be related to those exhibited in the rigidity of myoclonic epilepsy as described by Bielschowsky. On the basis of a careful study of case histories and the changes

found at necropsy, van Bogaert states that the syndrome in his patients corresponds to marbleization of the corpus striatum with degeneration of the motor cortex and of the olivary bodies. The condition is most probably an hereditary one.

Schweizerische medizinische Wochenschrift, Basel

59: 1097-1120 (Nov. 2) 1929

*Observations on Syphilis d'Emblée. M. Tièche.—p. 1097.
*Iodized Salt in Prophylaxis of Goiter. F. de Quervain.—p. 1099.
Relation of Goiter and Body Height. O. Stiner.—p. 1102.
Mortality from Puerperal Fever in Basel in the Years 1876-1925. E. Jessen.—p. 1104.
Pulmonary Gangrene of Slow Evolution. G. Humbert.—p. 1107.

Syphilis d'Emblée.—Tièche asserts that there are two forms of syphilis d'emblée, a hematogenous and a lymphogenous. The hematogenous type develops after blood transfusions if the donor has syphilis. The lymphogenous type becomes manifest in inflammations of the inguinal lymph nodes. The author gives a detailed description of two cases of the lymphogenous form. Although syphilis d'emblée is characterized by the absence of a primary lesion, the author thinks that a small, perhaps microscopic, initial sore exists, but that it is not noticed. He stresses that patients with inflammations of the inguinal lymph nodes should be kept under careful observation for several weeks, even if other symptoms of syphilis are not present. If the serologic test at first gives negative results, it should be repeated from time to time. In order to prevent the hematogenous form of syphilis d'emblée, the author states that persons who have had syphilis should never act as blood donors. A negative Wassermann reaction is not always sufficient proof for the absence of syphilis. Persons supplying blood should be requested to sign a statement that they have never had syphilis.

Iodized Salt in Prophylaxis of Goiter.—De Quervain reviews the literature on the prophylaxis of goiter. He asserts that harmful effects from the use of iodized salt are reported only by American authors. He explains this by the fact that the iodized salt that is used in America contains from forty to a hundred times as much iodine as the salt that is used in Switzerland. The author thinks that this comparatively large amount may have injurious effects on persons who are hypersensitive to iodine. The iodized salt that is used in Switzerland contains such minimal quantities that even susceptible persons are not likely to be harmed. The author stresses that the use of iodized salt is not intended as a mass treatment but only as a means of prevention.

Chirurgia degli Organi di Movimento, Bologna

14: 181-284 (Oct.) 1929

*Fracture of Capitulum of Humerus. S. Ciaccia.—p. 181.
Congenital Dislocation of Hip. F. Mandruzzato.—p. 200.
Weight Increase in Tuberculous Patients Subjected to Sanatorium Treatment. B. Blitz.—p. 212.
Tarsal Autotransplants. A. Curcio.—p. 216.
Three Cases of Tuberculous Osteoarthritis. S. Vacchelli.—p. 224.
Possible Influence of Tendons on Development of Centers of Ossification. G. Giuliani.—p. 243.
Primary Morbid Processes of Joint Capsule. E. Venezian.—p. 266.

Fracture of Capitulum of Humerus.—Ciaccia reports three cases of fracture of the capitulum of the humerus, not only because of the rarity of the lesion but also because they throw some light on the mode of causation (usually a fall). A fracture of the capitulum of the humerus is essentially intra-articular, since the epicondyle is not involved. There are two types: partial fracture, or the Kocher-Lorenz type, and total fracture, or the Hahn-Steinthal type. In the Kocher-Lorenz type the fragment consists solely of the cartilaginous cap of the capitulum with little bone substance. The fragment, which is small, remains attached to the humerus by means of the periosteal fibers, being not entirely free, after the manner of a mobile articular body. If the cartilaginous fragment is entirely free, it is usually displaced in the posterior part of the joint between the head of the radius, the olecranon and the lateral condyle of the humerus. In the total fracture of the Hahn-Steinthal type, the fragment is formed from the whole body of the capitulum together with a part, more or less extensive, of the external lip of the trochlea. The symptomatology of the lesion is not always so characteristic that it can be readily distinguished from that of other traumatic lesions of the elbow, especially those that involve the head of the radius or the coronoid process of the ulna. Swelling and ecchymosis are usually present but may be lacking. The pain on pressure is rather marked, being localized in the capitulum and in the head of the radius, when the swelling and the extravasated blood do not make examination difficult. Even when the patient cannot state exactly the points of the greatest pain on pressure, it is possible to establish that, on the whole, the pains are limited to the lateral side of the elbow and to the anterior surface. All authors are agreed that the treatment should consist in the removal of the bone fragment. The intervention presents no difficulties, and two of the author's patients were operated on in local anesthesia without need of hospitalization. The removal of the bone fragment effects a complete or nearly complete recovery of function.

Policlinico, Rome

36: 1579-1618 (Nov. 4) 1929. Practical Section

*Elimination of Tubercle Bacilli Through Kidney in Persons with Grave Pulmonary Lesions Without Apparent Renal Lesions. G. Millul.—p. 1579.
Peculiar Modifications in Blood Cultures in Present Outbreak of Typhoid. S. Fichera.—p. 1580.
Multiple Familial Cartilaginous Exostoses. E. Ruggieri.—p. 1581.

Elimination of Tubercle Bacilli Through Kidney.—Millul conducted researches on guinea-pigs to study the alleged elimination of tubercle bacilli through the kidney in subjects with grave pulmonary lesions without apparent involvement of the renal parenchyma, and as a result, he concludes that the elimination of tubercle bacilli through a kidney that presents no lesion recognizable by the ordinary methods of clinical research, even though the pulmonary lesions are quite advanced, cannot be regarded as a frequent occurrence. The author found tubercle bacilli in only one case. The biologic test proved negative in every instance, not only in the guinea-pigs in which the injection was given subcutaneously but also in those in which the inoculation was made directly into the peritoneum. The blood culture tests were positive in two instances in which the author recognized numerous typical colonies in the first and less numerous in the second. The blood culture test with the Petragnani medium is highly sensitive and enables the investigator in certain cases to make a diagnosis with the greatest precision. The advantage that the Petragnani medium has over other procedures is due to the highly selective capacity of the malachite green.

Riforma Medica, Naples

45: 1337-1368 (Oct. 5) 1929

Craniopharyngeal Tumors. M. Dalla Palma.—p. 1339.
*Influence of Blood Withdrawals on Recovery Process of Fractures. A. Rallo.—p. 1345.

Influence of Blood Withdrawals on Recovery Process of Fractures.—Rallo concludes from his researches that (1) periodic blood withdrawals (even minute amounts) cause an acceleration in the evolutional repair process of fractures, and (2) there may be secondarily an increased fixative capacity of calcium salts in all the tissues requiring such fixation.

45: 1369-1404 (Oct. 12) 1929

So-Called Exotic Syphilis; Pathogenic Hypotheses. L. Tommasi.—p. 1371.
Phenomenon of "Grand Auto-Agglutination" of Red Corpuscles in Syndrome of Chronic Icterus Due to Hypertrophic Splenomegalic Hepatitis. E. Greppi.—p. 1374.
*Probable Aggravating Effect of Bacillus Perfringens on Course of Typhoid Fever: Bacterial and Toxic Synergy of Bacillus Perfringens with Micro-Organisms of Typhoid-Coli Group. U. Reitani.—p. 1379.
Surgical Treatment of Gastric Ulcer. R. Minervini.—p. 1383.
Aneurysm of Pulmonary Artery. A. Tarsitano.—p. 1385.

Bacterial and Toxic Synergy of Bacillus Perfringens with Micro-Organisms of Typhoid-Coli Group.—Reitani, having observed a case of typhoid infection combined with *Bacillus perfringens*, studied experimentally on guinea-pigs the bacterial and toxic effects of the combination *B. perfringens* and micro-organisms of the typhoid-coli group. His researches confirm the existence of a true mutual bacterial and toxic stimulation between the typhoid bacillus and *B. perfringens* and show also that there is a like mutual stimulation between *B. perfringens* and the bacillus of paratyphoid B and *B. coli*, and, to a certain extent, between *B. perfringens* and the bacillus of paratyphoid A. It appears therefore probable that the bacterial and toxic

synergy aggravates at times the course of the typhoid and the paratyphoid fevers and that, on the other hand, *B. perfringens*, usually a harmless parasite in the human intestine, may sometimes, in consequence of bacterial and toxic stimulation of the micro-organisms of the typhoid-coli group, acquire marked pathogenic potency and cause grave results.

Semana Médica, Buenos Aires

36: 965-1040 (Oct. 3) 1929

*Results of Pyretotherapy with Malaria and African Recurrent Fever in Paresis. D. Speroni and J. R. Beltrán.—p. 969.
Roger's Disease and Pregnancy. M. L. Pérez and R. Bernasconi.—p. 971.
Gastrotonometry in Diagnosis of Stomach Diseases. A. Speroni and A. C. Muscio.—p. 976.
Incomplete Form of Recklinghausen's Disease. M. Fernández Blanco.—p. 982.
Good Results of Bismuth and Arsphenamine in Giant Urticaria. M. Somalo.—p. 987.
*Prophylaxis of Leprosy in Early Childhood. L. E. Pierini.—p. 988.
Intestinal Obstruction Thirteen Years after Doléris' Ligamentopexy. E. Matons.—p. 990.
Neuroglia of Brain in Paresis After Malaria Therapy. A. M. Sierra.—p. 1011.
Treatment of Chancroid and Bubo with Anti-Ducrey Vaccine. S. M. Cerruti and J. L. Dupuy.—p. 1026.

Results of Pyretotherapy with Malaria and African Recurrent Fever in Paresis.—Speroni and Beltrán believe that induced malaria and African recurrent fever give the best results in the treatment of paresis. The authors made a comparison of the two treatments. The result of malaria therapy was 30 per cent of practical cures and 40 per cent of incomplete remissions. The condition did not change in 20 per cent of the patients, and 10 per cent died. In another group of patients the authors injected 5 cc. of blood, either from the heart of a rat or from the vein of a donor, previously inoculated with *Spironema duttoni*. The arrest of the attacks was difficult, because the fever, which when naturally acquired yields to arsphenamine, when inoculated into paretic patients is very resistant to chemotherapeutic substances. The disease, however, showed a tendency to spontaneous recovery. The fever gradually disappeared. In two cases the results were good though the reaction was less intense than with malaria therapy.

Prophylaxis of Leprosy in Early Childhood.—Pierini says that asylums for children of lepers are necessary in Argentina. He states that 42 per cent of the children of lepers who continued living at home acquired the disease in from three to six years. Clinically suspected lesions became positive within five months of their appearance. Only 0.5 per cent of the children of lepers who were separated from their parents developed the disease. The youngest patient seen by the author was 4 years of age.

36: 1041-1100 (Oct. 10) 1929

Adams-Stokes' Syndrome and Chronotropic Bradycardia. T. Padilla and P. Cossio, Jr.—p. 1041.
*Use of Milk of Almonds in Dyspepsia of Artificially Fed Infants (Preparation of Almonds and Whey). J. P. Garrahan and C. M. Pintos.—p. 1043.
Amaurotic Familial Idiocy. A. Puglisi and J. C. Romero.—p. 1054.
Organization of Services of Mental Hygiene in South America. J. R. Beltrán.—p. 1059.
Roentgen Visibility of Azygos Lobe of Right Lung: Its Diagnostic Value in Tuberculosis. G. Sayago.—p. 1062.
Treatment of Wounds of Hand and of Fingers, Caused by Aniline Pencils. A. Buzzi, A. J. Costa and M. N. Derqui.—p. 1064.
Sacrococcygeal Vegetating Myxofibroma. E. L. Vila and J. A. Viriot.—p. 1068.
Papuloid Epidermal Cysts Ending in Pemphigus. C. Seminario, D. Mosto and J. Pessano.—p. 1071.
Moniliasis: Experimental Study of Lesions Seen in Animals. J. G. Peruchena and E. A. Pedace.—p. 1075.
Syndrome of Nasal Respiratory Insufficiency. C. F. Roldán Vergés.—p. 1085.

"Milk of Almonds" in Dyspepsia of Artificially Fed Infants.—The almond milk used by Garrahan and Pintos is prepared as follows: Almonds, 150 Gm., are macerated for twelve hours. Then they are peeled and ground up fine in a mortar. One liter of water is added and the mixture is filtered. To 500 Gm. of the resulting emulsion, 500 Gm. of cow's milk whey, 25 Gm. of sugar and 15 Gm. of rice cream are added. The mixture is heated to the boiling point. The authors say that a liter of this preparation contains: proteins, 22.5 Gm.; fat, 40 Gm.; carbohydrates, 60 Gm., and salts, 5 Gm. It has an energy value of 700 calories per liter. The authors advise the use of this preparation in the treatment of diarrhea and dyspepsia in artificially fed children. Its composition approximates that of mother's milk and the infant obtains sufficient salts, which modify both the intestinal reaction and the intestinal flora. Almond milk is a temporary diet to be given when dyspepsia or diarrhea exists. Its administration should be discontinued gradually and a natural diet substituted as soon as improvement is noted. To infants aged 4 months and more a pudding should be given instead of one of the meals of milk of almonds. The authors' patient, aged 13 months, was fed artificially during the last three months. As a sequel of measles the infant presented severe dyspepsia and diarrhea, with resulting dehydration and loss of weight. All attempts to improve the child's condition failed. The administration of 130 Gm. of almond milk, once a day at first, rapidly increasing up to 150 Gm. six times a day, produced a daily increase of weight of 50 Gm., euphoria, good appetite and, finally, recovery.

Archiv für klinische Chirurgie, Berlin

136: 1-416 (Oct. 23) 1929

*Treatment of Exophthalmic Goiter. W. König.—p. 1.
Experimental Study of Importance of Muscle Tonus in Joint Surgery. Tschmarke.—p. 43.
Surgical Treatment of Chondropathia Patellae. A. Oberniedermayr.—p. 56.
*Effect of Resection of Stomach on Intestinal Digestion. E. Hertel.—p. 66.
*Acute Necrosis of Pancreas. H. Stocker.—p. 84.
Traumatic Appendicitis. L. Fox and G. Zerbe.—p. 96.
*Basal Metabolism After Operations for Goiter. J. Hofhauser.—p. 105.
*Principles of Thoracoplastic Procedures Which Have a Mechanical Effect on Enlarged Heart. H. Fischer.—p. 112.
*Results of Chemocoagulation of Malignant Tumors of Urinary Bladder. H. Junker.—p. 212.
*Experimental Formation of Callus by Replantation of Callus Forming Tissues. C. Bauer.—p. 251.
Case of Congenital Hypertrophic Osteopathy (Melarheostosis). H. Kemkes.—p. 268.
*Treatment of Congenital Fistula of Neck with Diathermy (Electrocoagulation). G. Hofer.—p. 274.
Surgery of Gallbladder and Biliary Passages. O. Orth.—p. 309.
Surgical Complications of Dengue. H. Toole.—p. 328.
*Experimental Arthritis Deformans. A. Mannheim.—p. 334.
Change in Position of Stomach Caused by Extraventricular Tumors. E. Kraas.—p. 363.
*Trigeminal Neuralgia: Injection of Ganglion. F. Härtel.—p. 374.

Fundamentals in Treatment of Exophthalmic Goiter.—König reviews the results of his experimental study of the basis on which the treatment of this disease should rest. He determined, for example, that the resistance of the thyreotoxic organism to carbon dioxide is greatly reduced. The same is true of lactic acid. Both substances enter largely into blood chemistry and ordinarily make great inroads on the alkali reserve. The thyreotoxic organism has less alkali reserve to satisfy these substances than has the normal organism. If sodium lactate is injected into a person who has exophthalmic goiter, the lactic acid content of the blood is greatly increased. Exertion has a similar effect. Climbing stairs does not change the lactic acid content of the blood of a normal person; it does that of an exophthalmic goiter patient. This is regarded as being evidence not only of increased production of lactic acid but also of slower oxidation or resynthetization. Hence, increased need for oxygen and greater production of carbon dioxide. The author suggests that perhaps some of the lactic acid is excreted in the perspiration, which is often profuse in patients with exophthalmic goiter. The therapeutic indication in these cases, König says, is therefore to prescribe food containing large amounts of bases, such as sodium, calcium, potassium and magnesium. Such foods are all vegetables, fruit, milk and potatoes. Meats all contain excess of acids, but meat broth contains a slight excess of bases, the result of extraction of these salts by the cooking. The author details seven sample menus, one for each day in the week, which are regarded as being suitable for these thyreotoxic patients, and also gives a list of foodstuffs that may be used. A few of these foods, such as rye bread, butter, cheese, eggs, shell-fish, pork and asparagus, contain acids in excess over bases. It is advised not to eat white bread, meat, any food made from flour, or legumes. Sodium phosphate is also of value. The effect of insulin is increased on such a basic diet. The author has had good results from this treatment both before and after operation.

Effect of Gastric Resection on Intestinal Digestion.—Hertel calls attention to the relation of the method of resection employed to the subsequent digestion of food in the duodenum. Ordinarily the effect is an unfavorable one, but if the Billroth I operation is performed, rather than Billroth II, and if the anastomosis is properly placed, there will be ensured a longer stay of food in the remaining portion of stomach, which prepares it better for later continued digestion in the small intestine, especially in the duodenum. The author states that patients should be urged to chew the food thoroughly before swallowing.

Diagnosis of Acute Necrosis of Pancreas.—Stocker stresses the diagnostic importance of continuous pain, the so-called *dauerschmerz;* in fact, he accords this symptom absolute pathognomonic value. This pain is the result of the distention of the capsule of the pancreas and the pressure of the enlarged organ on contiguous nerve plexuses. The first symptoms often are manifested soon after eating. The abdomen is tender to pressure; the pain radiates toward the left, into the back or shoulder; abdominal distention, tympanites in advanced cases, are the most frequently occurring abdominal symptoms. Only rarely—then usually only in thin persons—can a tumor mass be palpated. Vomiting occurs occasionally. The vomitus is always mixed with bile but is never fecal. The only treatment worth while is surgical—removal of the gallbladder and choledochus drainage. Conservative treatment yields a mortality of 95 per cent. Surgical treatment in Stocker's experience has had a mortality of 59.3 per cent. A stubborn lack of appetite, distressing feeling of thirst and rapid and extreme emaciation are most distressing postoperative symptoms. The use of insulin has lessened the degree of these symptoms considerably. Although glycosuria has never been noted in these cases, the author advises keeping this in mind and forbidding food rich in carbohydrates, the use of alcohol and overeating. Examination of five patients operated on during the past three years disclosed that all of them suffered from severe attacks of dyspepsia or indigestion and constipation. Never has fat in the stools been noted. Of course, the destruction of a considerable portion of the pancreas naturally would entail digestive disturbances which only time can regulate, together with the judicious use of food and daily doses of insulin.

Basal Metabolism Rate After Goiter Operations.—Hofhauser calls attention to the fact that remissions may occur in any case of exophthalmic goiter before operation, but that only operation will effect lasting good results. However, operation alone is not sufficient to effect a cure. It is well known that all symptoms have remained manifest after complete or total radical resection of the entire gland, and in one of his cases the symptoms were not manifested in great degree until after resection; therefore the treatment must include more than operation and be checked carefully after operation by basal metabolism estimations.

Mechanical Effect of Hypertrophy of Heart.—Fischer discusses the effect of the enlarged heart on surrounding structures, even to the extent of causing structural deformities of the thorax. He shows that the heart needs room for its action; that it manages to get enough room, but often at great expense to itself, thus hastening decompensation. He cites fifty-six cases to show how this not desired result may be avoided by conserving heart energy. He resorts to surgery, removing portions of the bony wall of the thorax, if necessary, and always with good result. Such a procedure, if supported by effective internal treatment, is bound to conserve the heart from overwork and, at least, defer decompensation if not avoid it altogether.

Results of Chemocoagulation in Malignant Tumors of Bladder.—Junker reviews the results of coagulation by means of the roentgen rays, radium, mesothorium and the electric current in the treatment of these tumors, stating, in conclusion, that while each has its field of usefulness, in the cases of malignant tumors, none is wholly satisfactory. Chemocoagulation, on the other hand, palliates even in far advanced cases of carcinoma. He recommends the use of trichloracetic acid, according to the method of Joseph. The acid is dropped onto the tumor mass, or the tumor may be tunneled by electrocoagulation and then the acid is dropped into the tunnel. The author points out that bad results need not be feared if the acid drops onto healthy mucous membrane because, at the most, as has been shown experimentally and by clinical observation on patients, only the mucous membrane will slough and then regenerate itself rapidly. Hence the claim advanced by some that the use of this acid may cause perforation of the bladder wall is said to be unfounded. Hemorrhages are quickly checked by the acid. After its use the patient does complain of much pain, but this may be checked by the use of local anesthetics both before and after the application of the acid. Urinary antiseptics are also given and the bladder should be irrigated freely two or three times a week. The author employs pure trichloracetic acid. Crystals are heated until they deliquesce, making about 4 or 5 cc. in amount; then 5 drops of glycerin is added. The mixture is kept warm over a water bath and is injected through a warmed syringe, of course, cystoscopically. It is allowed to fall in drops onto the tumor surface. The technic is described in detail and six selected cases are reported to illustrate the result of this treatment.

Stimulating Callus Formation.—Experimental researches made by Bauer have demonstrated repeatedly that the one essential need for callus formation is blood. Periosteum alone is nonproductive; added to blood, it produces callus. Bone fragments are absorbed; bone marrow invariably leads to callus formation. Next to blood, bone marrow is the most important and essential element in callus formation. Small pieces of periosteum may produce callus, but only when the periosteum is thick, well supplied with blood vessels, hence young tissue, and removed from a young animal. The resulting callus does not have any characteristic structure in the roentgenogram. Bone alone may form callus, although the process is a slow one and only when the osteoblasts ordinarily found in the haversian canals wander to the surface where callus is needed. When other tissues, such as muscle, were used, it was found that while some callus formation occurred it depended on the presence of bone marrow or blood.

Use of Diathermy in Treatment of Congenital Fistula of Neck.—Hofer regards diathermy as a method of treatment in these cases which removes the objections that have been raised to other more radical methods; that is, surgical. He says it is vastly superior to every conservative method hitherto employed. The patient need not be hospitalized, but general anesthesia is always called for. There is no need to apprehend bleeding from puncture of any large blood vessel, but burns of the skin underneath the contact electrode must be guarded against. The author has seen such burns. They may be avoided by the use of a large electrode and by placing a moist piece of flannel between the skin and the electrode. He emphatically recommends diathermy in the treatment of every fistula of this sort. Three illustrative cases are cited.

Experimental Arthritis Deformans.—Mannheim relates the results of his experiments to produce an experimental arthritis deformans by means of irritations of various sorts. The most nearly characteristic lesions were produced by the electrical irritation of the cartilages of the knee joint. He says that the essential precursor of this condition is a degeneration, especially a necrosis, of the cartilage resulting from nutritional dysfunction.

Trigeminus Neuralgia and Alcohol Injection.—Härtel emphasizes the fact that neither operation nor alcohol injection of the gasserian ganglion or of the peripheral nerve constitutes an ideal treatment of trifacial neuralgia because it is not aimed at the underlying cause of the trouble but merely is intended to block nerve conduction. Both are mutilating methods of treatment; both endanger the other cranial nerves, even the brain itself, but must be resorted to until a better method is evolved. He stresses the importance of recognizing the indications for injection and of not considering it even until every other treatment has been employed and has failed to give relief. Furthermore, no one should attempt such injection until he has qualified himself to do so by thorough training in anatomy and localization of anatomic structures. Repeated injections are condemned except in cases in which there is a typical return of the neuralgia in full force, not a mere twitching. Disregard of these few points is, in the author's opinion, often the cause of failure of the treatment.

Klinische Wochenschrift, Berlin

8: 2073-2120 (Nov. 5) 1929

Synopsis of Sympathetic Neuroses. L. Lichtwitz.—p. 2073.
Occurrence and Significance of Soluble Sulphur Compounds in Blood Corpuscles. E. Gabbe.—p. 2077.
Cinematographic Presentation of Movements of Motile Micro-Organisms, Especially of Spirochetes. F. Neumann.—p. 2081.
*Catheterization of Right Heart. W. Forssmann.—p. 2085.
Experimental Hyperfeminization. D. Gostimirović.—p. 2091.
Principal Differences in Chemical Composition of Fluids Contained in Vesicles and of Fluids in Skin Tissues Excised Intra Vitam. E. Urbach.—p. 2094.
Heat Inactivation of Complement and Diagnosis of Syphilis. E. Kadisch.—p. 2096.
Correlation Between Spleen and Sympathetic Nervous System. E. Schliephake.—p. 2098.
Irreparability of Vascular Injuries Resulting from Overdosage of Viosterol. M. Schmidtmann.—p. 2099.
Significance of Gastroscopy for Investigations on Diseases of Stomach. K. Gutzeit.—p. 2099.

Catheterization of Right Heart.—Forssmann points out that whenever heart failure is impending, as in acute collapse during cardiac disease, in critical conditions during anesthesia or in cases of poisoning, an intracardiac injection is often the only means by which the patient can be saved. However, injections made directly into the heart often cause serious complications or even death. An injury of the pleura may cause fatal pneumothorax and, in the penetration of the cardiac wall, hemorrhage into the pericardium may result. Fearing such complications, the local application of cardiac medicaments is often postponed and thus precious time is lost. These considerations induced the author to find a less dangerous method for intracardiac medication. He attempted a catheterization of the right heart by way of the venous system. His first experiments were made on cadavers; later he succeeded in performing catheterization on himself. During the first attempt an assistant performed a venipuncture at the bend of the right elbow. Then a number 4 Charrière ureteral catheter, which had been kept in preparation in sterilized olive oil, was introduced into the cephalic vein to a length of 35 cm. Then the experiment was stopped because the assistant advised against it. A week later the author made a second attempt. This time he performed a venesection under local anesthesia on the left arm. He then introduced the catheter in its entire length of 65 cm., so that it reached into the right atrium. During both experiments roentgen pictures were made, which clearly showed the position of the catheter. The author states that during the introduction of the catheter he felt a sensation of warmth similar to that which is felt in intravenous injections of calcium chloride. Disturbances did not appear and the author asserts that this method is not dangerous. He further describes the case of a woman with suppurative peritonitis. The patient showed the symptoms of a severe circulatory disturbance. Therefore catheterization of the heart was done and by means of it 1 liter of a solution of dextrose with 2 mg. of epinephrine hydrochloride and 1 mg. of strophanthin was administered. Shortly after, the pulsation and the breathing became normal. Later the patient had a relapse, and the infusion was repeated, only the strophanthin was now omitted. Again an improvement was noted. However, it was of short duration and the patient died. The catheter had not been removed, and necropsy revealed that it reached into the right atrium. The author believes that this method should be further investigated. He again stresses its significance in cardiac collapse and in complications resulting from anesthesia. He also indicates the possibilities of this method for metabolic researches on the action of the heart.

Medizinische Klinik, Berlin

25: 1687-1724 (Nov. 1) 1929

Results of Newer Investigations on Tuberculosis: Pathogenesis of Pulmonary Tuberculosis. G. Leendertz.—p. 1687. C'td.
Relation Between Hypophysis and Genitalia. J. Novak.—p. 1690.
Incorrect Roentgen Diagnosis of Orbital Tumor. A. Elschnig.—p. 1693.
Rectal Narcosis in Direct Laryngotracheobronchoscopy and in Esophagoscopy. K. Auersbach.—p. 1694.
*Diastase Content of Urine in Diseases of Parotid Gland. G. Jorns.—p. 1696.
Use of Pituitary Preparation in Nephrolithiasis. H. Naumann.—p. 1697.
Simplification of Correction of Mamma. F. Halla.—p. 1697.
*Pathogenesis and Treatment of Endocrine Dermatoses in Women. M. Samuel and L. Strauss.—p. 1698.
Acute Obstruction of Ureter Following Roentgen Irradiation in Chronic Leukemia. J. Bedrna and J. Polčák.—p. 1700.
Relation Between Cholesterol Content of Blood and Clinical Course of Typhoid. F. Reiche.—p. 1701.
Fatty Degeneration of Adenoma of Thyroid Resembling Hypernephroma in Nodular Struma. K. Terplan.—p. 1702.
Gonorrhea: Various Methods for Treatment and for Determination of Recovery. A. Buschke and L. Loewenstein.—p. 1703. C'cn.

Diastase Content of Urine in Diseases of Parotid Gland.—It is pointed out by Jorns that the pancreas and the parotid gland resemble each other in several respects; one of the similarities is that both produce diastatic ferments. The changes in the diastase metabolism in disturbances of the pancreas have been repeatedly investigated. However, the diastase metabolism in diseases of the parotid gland has received little consideration. The author determined the quantity of diastase in the urine of thirty-five children with acute or chronic diseases of the parotid gland. The ages of the children varied between 2 and 14 years. The majority of them were at the clinic on account of surgical tuberculosis. They all were free from diseases of the pancreas. The parotitis was mild in nearly all cases. The majority of the children showed a slight increase in temperature, which lasted from one to three days. Serious complications did not become manifest. In twenty cases of acute parotitis the diastase content of the urine was determined regularly. In more than half of the cases it showed a marked increase. The largest quantities of diastase were detected during the days when the parotid gland was swollen. At this time the increase in the temperature had usually subsided, so that the increase in the diastase content of the urine could not be a result of the fever. The author points out that parotitis is usually easily recognized, and consequently the determination of the diastase content of the urine is of little practical value for the diagnosis or prognosis in this condition. However, the fact that an acute parotitis may effect changes in the diastase metabolism should not be overlooked when tests of the diastase content are performed in diseases of the pancreas. It is evident that an increased diastase content of the urine cannot always be taken as a certain indication of pancreatic disturbances. The author asserts also that in suppurative and in chronic parotitis and in cases of tumors of the parotid gland the diastase content of the urine does not increase.

Pathogenesis and Treatment of Endocrine Dermatoses in Women.—Samuel and Strauss report their observations on 290 women with various forms of dermatoses. The majority of the patients had some form of pruritus. Pruritus vulvae with or without disturbances of the vaginal secretion, generalized pruritus with itching over the whole body, intertrigo of the vulva and anal eczema were the conditions most commonly observed. The authors state that the majority of these women were in the menopause, and among the younger patients married women were comparatively more numerous than unmarried ones. Concerning the etiology of these dermatoses the authors state that in the majority of the patients the sugar content of the blood was markedly increased. In other instances the dermatoses could be traced to functional disturbances of the ovaries or to dysmenorrhea. In discussing the treatment, the authors state that many cases were refractory to the usual therapeutic methods such as baths and the application of ointments and powders. Because the blood sugar content was increased in many patients, insulin injections were tried. For several days the women received from 10 to 15 units of insulin, and the carbohydrate content of the diet was reduced. As a result of this treatment the pruritus and the hyperglycemia disappeared. In some instances in which the dermatoses were caused by ovarian or menstrual disturbances, the insulin injections were likewise helpful.

Mitteilungen a. d. Grenzgeb. d. Med. u. Chir., Jena

41: 511-626 (Oct. 16) 1929

*Lumbosacral Pain in Appendicitis. Hönck.—p. 511.
*Delayed Union of Fractures in Avitaminosis. S. P. Schilowzew.—p. 531.
Changes in Thyroid in Exophthalmic Goiter. W. Lang.—p. 536.
*Thrombosis of Abdominal Blood Vessels in Erythremia. A. Jacobi.—p. 555.
Roentgen Examination of Appendix in Chronic Appendicitis. W. Loepp.—p. 562.
Hormonal Properties of Blood in Parathyreoprival Tetany and in Exophthalmic Goiter. F. Blum.—p. 569.
Surgical Modification of Internal Secretion of Pancreas: Experimental Study. R. Demel and E. Krammer.—p. 582.
Surgical Treatment of Gallstones in Persons with Jaundice. A. J. Bengolea and C. Velasco Suarez.—p. 612.

Lumbosacral Pain in Appendicitis. — Hönck emphasizes the great importance of appendicitis as a cause of lumbosacral pain. He states that the characteristic feature of lumbosacral pain caused by appendicitis is the fact that it is relieved when the patient bends to the right and is intensified when he bends to the left.

Delayed Union of Fractures in Experimental Scurvy, Rickets and Beriberi.—In experiments on animals, Schilowzew found that in scurvy the organism loses completely the capacity to form a callus. Fractures in animals with avitaminosis C always lead to pseudarthroses. In rickets the formation and ossification of the callus are markedly retarded. In polyneuritis, also, the normal formation of the callus is delayed. On the basis of these facts the author emphasizes the importance of a diet rich in vitamins in the treatment of fractures; this supplies the organism with a substance that increases the regenerative capacity of bone and causes a more rapid formation and ossification of the callus. As a result, early massage and movement can be prescribed and in fracture of the leg the duration of the patient's confinement to bed is shortened.

Frequency of Thrombosis of Abdominal Blood Vessels in Erythremia.—Jacobi reports two cases of thrombosis of the abdominal blood vessels in erythremia and calls attention to the frequency of the concurrence of the two conditions.

Monatsschrift f. Geburtshülfe u. Gynäkologie, Berlin

83: 1-150 (Sept.) 1929

Nature, Action and Source of Antithrombin. A. Dienst.—p. 1.
*Interruption of Pregnancy in Status Epilepticus. W. Haupt.—p. 16.
*Fracture of Clavicle in the New-Born. B. Hukewytsch.—p. 25.
Development of Placenta Duplex. S. Itzkin.—p. 35.
*Luminescence Analysis of Mother's Milk and Amniotic Fluid. R. Joachimovits.—p. 42.
Technic of Cesarean Section. H. Krukenberg and H. Bodewig.—p. 57.
Malformations of Urogenital System. M. Magid.—p. 63.
Hemangiomyoma of Uterus. A. Mandelstamm.—p. 69.
Tubal Sterilization. G. Bakscht.—p. 71.
*Artificial Formation of Vagina. N. N. Malinowsky.—p. 77.

Interruption of Pregnancy in Status Epilepticus. — Haupt reports a case of status epilepticus in a quadripara, aged 34, in the fourth month of pregnancy. Lumbar puncture in which 40 cc. of cerebrospinal fluid was withdrawn and 20 cc. of air injected was followed immediately by a complete cessation of the attacks and the patient fell asleep. When she awoke the next morning she was mentally clear. Ten days later the author performed an operation in which he removed the ovum from the uterus, divided the uterine tubes, ligated their central ends, and peritonized them with the round ligaments.

Fracture of Clavicle in the New-Born Following Spontaneous Delivery in Head Position. — Hukewytsch states that in 1927 he observed thirty-two fractures of the clavicle in 2,213 new-born infants (1.44 per cent). In four cases, forceps had been applied; in the others the delivery had been spontaneous in a head position and the customary method for the delivery of the shoulders had been used. On the basis of his personal experience and a review of the literature the author concludes that many fractures of the clavicle in the new-born are overlooked.

Luminescence Analysis of Mother's Milk and Amniotic Fluid for Medicaments and Poisons.—Joachimovits describes a method for demonstrating the passage of fluorescent medicaments and poisons into mother's milk and amniotic fluid by means of their examination in filtered ultraviolet radiation (Hanauer analysis lamp).

Late Complication Following Artificial Formation of Vagina. — Malinowsky reports a case of obliteration of the orifice of a loop of small intestine used one and one-half years previously in the formation of an artificial vagina. The cicatricial closure of the orifice was followed by suppuration and intraperitoneal perforation of the loop of intestine.

Münchener medizinische Wochenschrift, Munich

76: 1867-1908 (Nov. 8) 1929

Animal Experiments in Congenital Syphilis. P. Mulzer and C. F. Hahn.—p. 1867.
*Medicinal Treatment in Spastic Conditions of Gastro-Intestinal Tract, Especially in Disturbances of Stomach. H. Löhr.—p. 1869.
Beginning and Early Diagnosis of Fulmonary Tuberculosis. L. Schmitt.—p. 1871.
*Observations During Scarlet Fever Epidemic in Military School. Hippke.—p. 1873.
*Abortion as Cause of Neuroses. O. K. Kankeleit.—p. 1874.
Efficacy of Half-Wave Apparatus in Medical Roentgen Technic. G. Spiegler and J. Zakovsky.—p. 1876.
Treatment of Commotio Cerebri. A. M. Durand-Wever.—p. 1879.
Examination and Treatment of Patients with Heart Disease. Siebeck.—p. 1880.
Technical Improvements in Roentgen Therapy of Thoracic Organs. H. Jüttner.—p. 1882.
Value of Diathermic Knife in Gynecologic Surgery. R. Dyroff.—p. 1885.
Case of Polypous Bronchial Carcinoma Causing Stenosis. H. von Pein.—p. 1888.

Medicinal Treatment in Spastic Conditions of Gastro-Intestinal Tract, Especially in Disturbances of Stomach. —Löhr points out that, in most diseases of the gastro-intestinal and biliary tracts, dietary treatment alone is not sufficient and medicinal therapy is necessary. However, morphine and other opiates are contraindicated, particularly in diseases of the stomach. The author obtained good results with a medicine containing 0.025 Gm. of diallylbarbituric acid, 0.0005 Gm. of papaverine hydrochloride and 0.025 Gm. of atropine sulphate. The diallylbarbituric acid alleviates the pain. It also has an antispasmodic effect, and therefore supplements the antispasmodic action of papaverine. Atropine reduces the secretions, the tonus and the peristalsis. The author states that this medicine should be taken about one-half hour before mealtime. It should not be given after meals. This treatment was employed in more than 400 patients. It proved effective in spasms of the stomach and in those caused by biliary disturbances, also in intestinal tenesmus during dysentery. Even in cases of vascular spasm it often proved of value.

Scarlet Fever Epidemic in Military School. — Hippke describes his experiences during a scarlet fever epidemic in a military school. When the disease was discovered, 193 inmates of one building were immediately isolated so as to prevent the infection of 750 more students. Eighty-one out of the 193 actually contracted scarlet fever. However, the careful isolation prevented the other 750 members of the institution from becoming infected. The author thinks that the disease is transmitted mainly by inhalation, for none of the persons who handled the dishes that had been used by the patients became infected. The scarlet fever exanthem appeared in only twenty-nine cases. Complications such as pains in the joints or in the ears, abscesses of the tonsils, hematuria and albuminuria were noted in many patients, but they were always comparatively mild. Secondary diseases did not occur. It was not necessary to employ antitoxic serum. Concerning the bacteriology the author states that in smears taken from the tonsils or from the pharynx, *Streptococcus viridans* was found in pure culture. During the later stages of the disease other bacteria were noted and among them also hemolytic streptococci. As soon as the streptococci disappeared (usually after four or six weeks) the patients were discharged. None of them communicated the disease to other students.

Abortion as Cause of Neuroses.—Kankeleit describes the cases of several women who, after an abortion, developed mental disturbances. In none of these cases had the abortion caused physical complications. In most instances the psychosis developed several months after the abortion. The patients had insomnia, were depressed, had disturbing dreams, were haunted by the thought of having committed a crime, and some had intentions of suicide. The author considers these psychoses as expressions of self-punishment, as a kind of penance for a wrong committed. It was possible to restore the mental balance of these women by psychotherapy.

Strahlentherapie, Berlin

33: 601-812 (Sept. 18) 1929

Roentgen Treatment of Cancer of Cervix Uteri. W. Fürst.—p. 601.
*Roentgen Irradiation in Gynecologic Inflammations. H. Siedentopf.—p. 637.
*Indications for Operation in Diseases of Thyroid. F. Pordes.—p. 652.
Radium Irradiation in Induratio Penis Plastica. H. Fuhs.—p. 667.
*Roentgen Treatment of Erysipelas and Erysipeloid. C. Fried.—p. 673.
Roentgen Treatment of Dermal Leishmaniosis. M. I. Karlin.—p. 682.
Finsen Treatment of Tuberculosis of Knee Joint. O. Chiewitz.—p. 691.
Biologic Action of Cathode Rays. G. Politzer and W. E. Pauli.—p. 704.

Temperature of Skin During Irradiation with Heat Rays. P. Keller.—p. 711.
Erythema Following Irradiation with Roentgen Rays of Various Wavelengths. P. Hess.—p. 721.
Roentgen Treatment of Skin Diseases. H. Habs, H. Hase and H. Küstner.—p. 732.
Absorption Coefficients of Roentgen Rays. B. Kelen.—p. 748.
Irradiation in Treatment of Benign Conditions of Female Genitalia. F. Heimann.—p. 760.
German Expedition in Iceland in 1927. L. Gmelin and F. Dannmeyer.—p. 770.

Weak Roentgen Irradiation in Parametritis and in Diseases of Uterine Adnexa.—Siedentopf reports on the use of weak roentgen irradiation in the treatment of sixteen cases of parametritis and nine cases of inflammation of the uterine adnexa. On the basis of the results obtained in these cases he states that in 50 per cent of the cases of parametritis definite improvement occurs; acute exacerbations of the condition are rare and severe complications do not develop. In many of the cases of acute and subacute inflammation of the uterine adnexa exacerbations and severe and intractable complications occur, but in the chronic, afebrile cases improvement is frequently noted.

Indications for Operation in Diseases of Thyroid.—Pordes states that, in diseases of the thyroid, operation is indicated only in cases in which a goiter, by reason of its size or position, compresses the trachea and in cases in which the pathologic condition does not respond to roentgen treatment continued over a period of six months.

Roentgen Treatment of Erysipelas and Erysipeloid.—Fried states that he obtained excellent results with roentgen treatment in nine cases of erysipelas and good results in three cases of erysipeloid.

Wiener klinische Wochenschrift, Vienna

42: 1397-1428 (Oct. 31) 1929

Clinical and Experimental Researches on Nature of Itching. H. Ehrenwald and H. Königstein.—p. 1397.
Filaria Sanguinis Hominis in Hajdunánás, Hungary: Case. E. Neuber.—p. 1398.
Diathesis During Childhood. A. Reuss.—p. 1403. C'cn.
Prophylaxis of Measles by Means of Convalescent Serum. P. Ferencz.—p. 1407.
Idem. W. Knoepfelmacher.—p. 1408.
Relation Between Anaphylaxis and Acid-Base Equilibrium. S. von Pelláthy and E. Haintz.—p. 1408.
*Unilateral Atrophy of Mamma in Women with Pulmonary Tuberculosis. B. Kokalj-Kowalewska.—p. 1410.
Indications in Obstetric Operations. F. Kermauner.—p. 1412.
Problems in Surgical Treatment of Gastric and Intestinal Ulcers. A. Winkelbauer.—p. 1412.
Clinical Significance of Malformation of Kidney. K. Haslinger.—p. 1413. C'cn.
Intravenous Injections of Iodine in Treatment of Nervous Diseases. M. Schacherl.—p. 1416.
Assistance of the General Practitioner in Treatment of Scoliosis. F. Bauer.—p. 1417.

Unilateral Atrophy of Mamma in Women with Pulmonary Tuberculosis.—Kokalj-Kowalewska observed that the mammary glands of women with pulmonary tuberculosis frequently differed in size. This observation induced him to investigate the relation between the pulmonary process and the size of the breasts in 166 women with pulmonary tuberculosis. In seventy-seven of them both lungs were affected, whereas in eighty-nine the pulmonary process was unilateral. To determine the size of each mammary gland the author determined the length of the so-called oblique diameter; that is, the distance between the lower angle of the sternoclavicular joint and the center of the mammilla. The length of this diameter increases with the size and with the sagging of the breast. In the patients examined it varied between 10 and 29 cm. About 42 per cent of the 166 women had breasts of equal size. In some of them slight differences of less than 1 cm. were noted, but the differences were considered as a manifestation of the physiologic asymmetry of the human body, the right breast frequently being slightly larger. In 57 per cent of the total number examined a marked atrophy of one breast was noted. Of the patients with unilateral pulmonary processes, more than 75 per cent showed atrophy of the mammary gland on the side of the affected lung. The author thinks that unilateral atrophy of the mamma is of diagnostic significance, especially in the beginning stage of pulmonary tuberculosis.

42: 1429-1460 (Nov. 7) 1929

Clinical Hemodynamics. J. Plesch.—p. 1429. C'td.
*Influence of Calf's Thymus on Carcinolysis and on Blood Picture of Patients with Inoperable Carcinoma. A. Kittinger.—p. 1434.
*Diuretic Action of Liver Extract on Dogs with Renal Insufficiency. S. Glaubach and H. Molitor.—p. 1437.
Sound Resembling Flint's Murmur in Mitral Stenosis. W. Thür.—p. 1438.
Alleviation of Labor Pains by Administration of Solution of Secondary Butylbrompropenylbarbituric Acid (Pernocton). H. Levinny.—p. 1440.
New Obturator to Combat Nasalization in Patients with Cleft of Hard Palate. E. Fröschels and A. Schalit.—p. 1442.
Surgical Treatment in Puerperal Diseases. J. Amreich.—p. 1444.
Manometer Reading in Artificial Pneumothorax Combined with Phrenic Exeresis. A. Kirch.—p. 1446.
*Treatment in Hypertrophy of Prostate. O. Schwarz.—p. 1446.
Value of Roentgenoscopy in Diagnosis of Renal Diseases. F. Eisler.—p. 1447.

Influence of Calf's Thymus on Carcinolysis and on Blood Picture of Patients with Inoperable Carcinoma.—Kittinger points out that tests with extracts of various organs have shown that the carcinolytic power of thymus extracts is comparatively high. Accordingly he treated patients with inoperable carcinoma by implanting fresh thymus of calves or by injection of thymus extracts. His observations are summed up as follows: The carcinolytic power of the blood serum can be increased by implantation of thymus from calves. However, these effects are not lasting. The thymus substance is more effective if it is implanted or injected than if it is administered in the form of enemas. Following implantation of thymus, serious disturbances in the patient's general condition may appear. This results from the decomposition of the protein. Lasting improvements in the condition of the blood cannot be attained.

Diuretic Action of Liver Extract on Dogs with Renal Insufficiency.—Glaubach and Molitor direct attention to the fact that, in diseases of the liver, disturbances in the water metabolism and especially in the functioning of the kidney are a frequent occurrence. On the assumption of a correlation between the liver and the kidney, attempts have been made to influence disturbances of the renal functioning by the administration of liver extracts. The authors report experiments on dogs. The renal functioning of the animals had been impaired either by removing part of the kidneys or by cutting off the supply of arterial blood. As a result, the elimination of urine was markedly reduced and the animals showed symptoms of uremia. Diuresis set in shortly after the injection of liver extract. The preparation was administered in quantities of from 1 to 2 mg. for each kilogram of weight. It was given either intravenously or subcutaneously. Harmful effects were not observed. In some animals the diuretic action was only temporary, whereas in others complementary hypertrophy had set in. In the latter animals the renal functioning became normal again without prolonged administration of the diuretic liver extract. The chemical nature of this diuretic agent has as yet not been determined. Whether it will be applicable in man for the treatment of renal disease or other conditions with disturbances of the water metabolism will have to be proved by clinical experiments.

Treatment for Hypertrophy of Prostate.—For the treatment of aseptic prostatitis, Schwarz recommends massage. However, this is not effective in all cases of hypertrophy of the prostate. In many instances, residual urine is present. If it is not infected and provided it does not exceed 200 cc., an attempt may be made to remove it entirely by repeated catheterization. However, if the residual urine collects again frequent catheterization is not only not necessary but is often dangerous. It has been found that such patients may have the same amount of residual urine for several years. However, it is advisable that a control examination be made about every six months, for if the quantity of the residual urine increases, surgical treatment becomes necessary. If an infection exists, an early operation is necessary even if the quantity of the residual urine is small. The author recommends the one stage operation in preference to the two stage operation. For inoperable cases he advises self-catheterization or a permanent suprapubic fistula. He also mentions Young's punch operation. Treatments which are recommended by other authorities are injections into the tumor of the prostate or irradiation of the gland.

Zentralblatt für Chirurgie, Leipzig

56: 2689-2752 (Oct. 26) 1929

*Treatment of Delayed Union of Fracture of Tibia. A. Beck.—p. 2690.
Sterilizable Electrical Bone Drill. A. Beck.—p. 2692.
Results of Palliative Resection for Gastric Ulcer Distant from Pylorus. M. Madlener.—p. 2694.
*Rupture of Intestine Without Penetrating Wound: Result of Fall on a Broomstick. P. Esau.—p. 2697.
*Etiology of Torsion of Omentum. E. Kahnt.—p. 2699.
An Arm Support for Operations on Breast and Axilla. V. Orator.—p. 2701.
Instrument for Placing Kirschner's Wire Extension. E. Kahnt.—p. 2702.
Surgery of Brain. H. Peiper.—p. 2704.

Treatment of Delayed Union of Bone After Fracture.—Beck drills into the fractured bone with the view of causing bleeding and leaving bone dust in the track of the drill to stimulate bone formation. He uses a drill about 2 mm. in diameter, not the ordinary spiral drill but one which will leave the bone detritus in situ. This is important to bone regeneration. As many drill holes may be made as desired at various parts of the bone. Only a small incision is needed. The procedure has proved extremely satisfactory in actual practice.

Traumatic Rupture of Intestine Without External Wound.—Esau relates the case of a man who fell downstairs, landing on a broom handle which caused a slight external injury of the skin in the perineal region. He arose and walked home without serious discomfort. Twelve hours later he developed symptoms indicative of rupture of the intestine. On examination only the slight skin wound was found. At operation two large tears of the intestine were discovered but without any opening in the peritoneum, nor was there any injury of any of the pelvic organs. There was no communication between the perineal skin wound and the interior of the abdominal cavity. Appropriate suturing was done and the patient made an uneventful recovery.

Etiology of Torsion of the Omentum.—Kahnt cites a case in which a diagnosis of acute appendicitis led to operation. However, the appendix was found to be only slightly inflamed, but in the region of the cecum the omentum had undergone two clockwise torsions. Both inguinal canals were considerably dilated. He concludes that adhesion of the tip of the omental process and increased intestinal peristalsis are necessary before torsion of the omentum can take place.

56: 2753-2816 (Nov. 2) 1929

Use of Electrosurgery in Brain Operations. N. Guleke.—p. 2757.
Technic of Operations for Goiter. Z. von Berzsenyi.—p. 2760.
*Antiseptic Value of Hydrochloric Acid. J. Loessl.—p. 2762.
Dangers and Advantages of Methods of Anesthesia. C. Schroeder.—p. 2766.
Lumbar Anesthesia with Percaine. H. Ziegner.—p. 2770.
Surgical Treatment of Sterility in the Male: Result of Bilateral Epididymitis. J. J. Stutzin.—p. 2773.
Radical Operation for Direct Inguinal Hernia. E. Balogh.—p. 2775.
Metal Stand for Ombrédanne Etherizing Apparatus. E. Boerner.—p. 2777.
Foreign Body (Nail) in Male Urethra. M. Molnár.—p. 2779.

Antiseptic Value of Hydrochloric Acid.—Bacteriologic studies have convinced Loessl that a 0.005 per cent solution of hydrochloric acid is a certain and safe antiseptic, far superior to hydrogen dioxide and surgical solution of chlorinated soda or other chlorine solutions in the treatment of infected wounds. Its application is not painful; it does not have any cauterizing effect on the skin; the formation of granulation tissue is stimulated, especially in the presence of necrosis of tissues. Furthermore, it is easily prepared; keeps indefinitely without undergoing any chemical change, and is cheap.

Zentralblatt für Gynäkologie, Leipzig

53: 2321-2384 (Sept. 14) 1929

Roentgenogram in Positio Occipitalis Pubica. H. O. Neumann.—p. 2322.
*Division of Umbilical Cord. G. Haselhorst and M. Trautvetter.—p. 2330.
End-Results in Treatment of Cancer of Cervix. C. Clauberg.—p. 2339.
*Interruption of Pregnancy in Tuberculosis. W. Hannes.—p. 2347.
Hemorrhages from Corpus Luteum. A. Muhl.—p. 2350.
*Anaerobic Infection of Peritoneum. F. Fritschek.—p. 2353.
Dermoid Cysts of Ovary. A. Mandelstamm.—p. 2356.

Optimum Time for Division of Umbilical Cord.—On the basis of a comparative study of the effects of immediate ligation of the umbilical cord following delivery in fifty new-born infants and of ligation of the umbilical cord five minutes post partum in another series of fifty new-born infants, Haselhorst and Trautvetter state that the umbilical cord should not be ligated during the first two or three minutes. Even in flaccid and asphyctic infants it is best to wait two minutes before dividing the cord because during this time approximately 100 cc. of blood passes from the placenta to the child's body and facilitates resuscitation.

Interruption of Pregnancy in Tuberculosis.—Hannes does not agree with obstetricians who state that interruption of pregnancy in tuberculosis is indicated chiefly in cases in which it is certain that the intervention will influence favorably the tuberculous process. He believes that it is indicated in all cases in which the continuation of the pregnancy endangers the life of the patient.

Anaerobic Infection of Peritoneum.—Fritschek reports a case of anaerobic infection of the peritoneum in a woman, aged 26, with perforative appendicitis. He states that in all cases of perforation peritonitis one should expect anaerobic infection and treat the patient accordingly.

Norsk Magasin for Lægevidenskapen, Oslo

90: 1133-1244 (Nov.) 1929

*Operative Treatment of Pulmonary Tuberculosis in Norway from 1914 to 1928. P. Bull.—p. 1133.
Simultaneous Extra-Uterine and Intra-Uterine Pregnancies (Two Cases). A. Sunde.—p. 1172.
*Treatment of Diabetes with Regard to Functioning of Liver and Kidney. O. Bang.—p. 1179.
Typhoid Carriers on West Coast. M. and M. Haaland.—p. 1197.
*Trigeminal Neuralgia with Operative Treatment: 100 Cases. V. Magnus.—p. 1215.

Operative Treatment of Pulmonary Tuberculosis in Norway from 1914 to 1928.—Bull asserts that in cases of unilateral or practically unilateral pulmonary tuberculosis in which artificial pneumothorax cannot be induced or fails to give recovery, from 35 to 45 per cent of the patients can be saved by thoracoplasty and become able to work, about 20 per cent improve after the operation but later die from tuberculosis, in about 20 per cent the operation is without effect, about 6 per cent grow worse, and about 10 per cent die within eight weeks after the operation. The mortality is lower after thoracoplasty done in two sittings than in one. Whether local or general anesthesia is used does not seem to have a marked effect on the results. The operation is indicated when improvement does not occur after from three to four months of sanatorium treatment and artificial pneumothorax cannot be induced.

Treatment of Diabetes with Regard to Functioning of Liver and Kidney.—Bang finds that with a diet providing for sufficient carbohydrate intake and metabolism, the functioning of the liver and the kidney becomes normal, ketonuria, pathologic urobilinuria and glycosuria disappear, and the blood sugar may reach normal values. The amount of carbohydrate, the dose of insulin and the time required varied in the different patients treated. Fourteen cases are reported; in the two milder cases, insulin was not given.

Trigeminal Neuralgia with Operative Treatment.—Magnus has performed retrogasserian neurotomy in 100 patients, of whom thirty-one were more than 70 and one more than 83 years of age. The operation was effective in all cases, but two deaths occurred.

Ugeskrift for Læger, Copenhagen

91: 961-1012 (Nov. 7) 1929

*Serodiagnosis of Syphilis (International Investigations Instituted by Committee on Hygiene of League of Nations). T. Madsen and J. R. Mørch.—p. 961.
Perforated Gastric and Duodenal Ulcer in Child. K. M. Andersen.—p. 978.

Serodiagnosis of Syphilis.—Madsen and Mørch report the results of comparative investigations on fifteen different serodiagnostic methods in the examination of 944 specimens of blood (502 from patients with known syphilis) and 102 specimens of spinal fluid (90 per cent from patients with syphilis), carried out in the second laboratory conference of serologists, held at Copenhagen in 1928. Precipitation reactions were found to be superior to even the best Wassermann methods in sensitivity and equal in specificity. The application of both a precipitation and a Wassermann reaction is advised in the examination of all specimens of blood and spinal fluid.